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United States  
Department of  
Agriculture  
  
Natural  
Resources  
Conservation  
Service

# Washington Basin Outlook Report

## April 1, 2000



# **Basin Outlook Reports and Federal - State - Private Cooperative Snow Surveys**

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## *How forecasts are made*

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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# Washington Water Supply Outlook

April 2000

## General Outlook

Fresh snow accumulations in March and early April have helped build and maintain the statewide snowpack. Some lower elevation snow had begun to melt due to very warm temperatures the first week of April. However a cold front followed that brought additional snow. Springtime avalanche conditions may be very high according to the Northwest Avalanche Center in Seattle. Travelers and recreationists should use extreme caution when traveling in the mountains of Oregon and Washington.

## Snowpack

The April 1 statewide SNOTEL readings were above average at 115%. The Similkameen River snow surveys from Canada reported the lowest readings at 71% of average. Readings taken in the Lewis River Basin reported the highest at 157% of average. Westside averages from SNOTEL and April 1 snow surveys included the North Puget Sound river basins with 112%, the Central Puget river basins with 128%, and the Lewis-Cowlitz basins with 138%. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 106% and the Wenatchee area with 99%. Snowpack in the Spokane River Basin was at 105% and the Pend Oreille River Basin, including Canadian data, had 87% of average. Maximum snow cover in Washington was at Paradise Park SNOTEL near Mount Rainier with a water content of 79.6 inches. This site would normally have 62.1 inches of water content on April 1. Last year at this time Paradise Park had 99.2 inches of snow water.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE	ONE MONTH CHANGE
Spokane .....	78	105	-4
Newman Lake .....	89	148	16
Pend Oreille .....	76	87	-5
Okanogan .....	66	98	6
Methow .....	56	95	3
Similkameen .....	57	71	-4
Wenatchee .....	64	101	3
Chelan .....	69	107	7
Steilacoom Creek .....	54	88	2
Yakima .....	67	112	4
Ahtanum Creek .....	59	96	-2
Walla Walla .....	77	112	3
Lower Snake .....	83	107	-5
Cowlitz .....	67	118	0
Lewis .....	71	157	0
White .....	69	118	8
Green .....	94	106	9
Puyallup .....	69	118	8
Cedar .....	87	129	-9
Snoqualmie .....	78	112	2
Skykomish .....	79	122	6
Skagit .....	55	98	0
Baker .....	74	116	13
Nooksack .....	66	121	9
Olympic Peninsula .....	41	99	-9

## Precipitation

During the month of March, the National Weather Service and Natural Resources Conservation Service climate stations showed a range of below to near average precipitation for Washington river basins. The highest percent of average in the state was at Colville Airport. Colville reported 202% of average for a total of 3.5 inches. The average for this site is 1.51 inches for March. Averages for the water year varied from 119% of average in the Walla Walla River Basin to 95% of average in the Okanogan - Methow river basins. Most basins in the state reported a decrease in water year averages at the end of the month. This follows the precipitation trend of a dryer than normal March.

RIVER BASIN	MARCH PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE	ONE MONTH CHANGE
Spokane .....	99 .....	114 .....	-2
Colville-Pend Oreille .....	111 .....	105 .....	1
Okanogan-Methow .....	86 .....	95 .....	-2
Wenatchee-Chelan .....	99 .....	107 .....	-1
Upper Yakima .....	94 .....	106 .....	-2
Lower Yakima .....	80 .....	116 .....	-6
Walla Walla .....	98 .....	119 .....	-4
Lower Snake .....	88 .....	111 .....	-5
Cowlitz-Lewis .....	71 .....	110 .....	-7
White-Green-Puyallup .....	84 .....	98 .....	-3
Central Puget Sound .....	93 .....	111 .....	-2
North Puget Sound .....	93 .....	104 .....	-2
Olympic Peninsula .....	73 .....	112 .....	-7

## Reservoir

Reservoir storage in the Yakima Basin was 566,100-acre feet, 96% of average for the Upper Reaches and 163,500-acre feet, 107% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 131% of average for April 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 171,500-acre feet, 101% of average and 72% of capacity; Chelan Lake, 277,100 acre feet, 131% of average and 41% of capacity; and Ross Lake at 205% of average and 43% of capacity.

BASIN	PERCENT OF CAPACITY	PERCENT OF AVERAGE
Spokane .....	72 .....	101
Colville-Pend Oreille .....	64 .....	176
Okanogan-Methow .....	83 .....	131
Wenatchee-Chelan .....	41 .....	131
Upper Yakima .....	68 .....	96
Lower Yakima .....	71 .....	107
North Puget Sound .....	43 .....	205

*For more information contact your local Natural Resources Conservation Service office.*

## Streamflow

April forecasts indicate near normal summer flows for most streams in the state. They vary from 136% of average for Chamokane Creek near Long Lake to 87% of average for Similkameen Creek near Nighthawk. April forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 101%; Green River, 106%; and Skagit River, 99%. Some Eastern Washington streams include the Yakima River near Parker, 100%; Wenatchee River at Peshastin, 100%; and Spokane River near Post Falls, 99%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS.

Streamflows reported for March varied from well above to well below average. The South Fork Walla Walla near Milton Freewater had the highest flows with 148% of average. The Cle Elum River near Roslyn with 55% of average, was the lowest in the state. Other streamflows were the following percentage of average: the Priest River, 82%; the Columbia at The Dalles, 100%; the Spokane at Spokane, 111%; the Columbia below Rock Island Dam, 101%; the Cowlitz below Castle Rock, 87%; and the Snake River below Ice Harbor Dam, 99%.

BASIN	PERCENT OF AVERAGE MOST PROBABLE FORECAST (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane .....	99-102
Colville-Pend Oreille .....	91-136
Okanogan-Methow .....	87-99
Wenatchee-Chelan .....	100-116
Upper Yakima .....	98-114
Lower Yakima .....	97-123
Walla Walla .....	105-110
Lower Snake .....	89-104
Cowlitz-Lewis .....	99-123
White-Green-Puyallup .....	93-106
Central Puget Sound .....	99-106
North Puget Sound .....	99-108
Olympic Peninsula .....	101
STREAM	PERCENT OF AVERAGE MARCH STREAMFLOWS
Pend Oreille Below Box Canyon .....	88
Kettle at Laurier .....	112
Columbia at Birchbank .....	122
Spokane at Long Lake .....	122
Similkameen at Nighthawk .....	80
Okanogan at Tonasket .....	67
Methow at Pateros .....	98
Chelan at Chelan .....	84
Wenatchee at Pashastin .....	61
Yakima at Cle Elum .....	64
Yakima at Parker .....	76
Naches at Naches .....	74
Grande Ronde at Troy .....	126
Snake below Lower Granite Dam .....	93
SF Walla Walla near Milton Freewater .....	148
Lewis at Ariel .....	81
Cowlitz below Mayfield Dam .....	80
Skagit at Concrete .....	77

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**B A S I N   S U M M A R Y   O F  
S N O W   C O U R S E   D A T A**

**APRIL 2000**

SNOW COURSE	EL E V A T I O N	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE	EL E V A T I O N	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
ABERDEEN LAKE CAN.	4000	3/29/00	19	5.5	5.2	5.7	GOLD CREEK LAKE	7200	3/25/00	33	10.0	17.4	15.9
ABOVE ROLAND	4350	3/29/00	75	31.0	45.4	32.3	GRASS MOUNTAIN #2	2900	3/30/00	23	11.7	12.5	15.9
ALPINE MEADOWS	3500	3/29/00	138	58.0	75.0	43.7	GRAVE CREEK	4300	3/31/00	44	16.7	17.3	17.0
ALPINE MEADOWS PILL	3500	4/01/00	---	64.6	71.2	43.5	GRAVE CRK PILLOW	4300	4/01/00	---	15.5	16.8	16.7
AMBROSE	6480	3/28/00	34	9.7	17.4	13.2	GREEN LAKE PILLOW	6000	4/01/00	---	24.4	42.3	20.7
ASHLEY DIVIDE	4820	3/28/00	16	4.4	5.7	6.6	GREYBACK RES CAN.	4700	3/30/00	30	7.9	10.7	9.0
BADGER PASS	6900	3/27/00	80	30.8	46.0	38.4	GRIFFIN CR DIVIDE	5150	3/29/00	28	8.6	10.0	11.2
BADGER PASS PILLOW	6900	4/01/00	---	30.0	44.8	36.5	GROUSE CAMP PILLOW	5380	4/01/00	---	20.5	34.2	19.8
BAREE CREEK	5500	3/27/00	26	9.4	59.8	45.3	GUNSIGHT LAKE	6300	3/27/00	95	37.4	47.6	40.0
BAREE MIDWAY	4600	3/27/00	82	32.7	44.6	35.1	HAMILTON HILL CAN.	4550	3/27/00	32	11.3	16.5	14.7
BARKER LAKES PILLOW	8250	4/01/00	---	9.6	16.2	15.4	HAND CREEK	5030	3/30/00	37	11.4	---	13.6
BARNES CREEK CAN.	5320	3/26/00	65	22.7	27.7	20.0	HAND CREEK PILLOW	5030	4/01/00	---	12.1	13.4	13.3
BASIN CREEK PILLOW	7180	4/01/00	---	7.4	9.0	8.7	HARTS PASS PILLOW	6500	4/01/00	---	36.1	69.7	41.3
BASSOO PEAK	5150	3/30/00	31	8.2	9.8	11.3	HEART LAKE TRAIL	4800	3/30/00	54	19.4	27.9	21.6
BEAVER CREEK TRAIL	2200	3/31/00	37	15.8	32.7	11.6	HELL ROARING DIVIDE	5770	3/29/00	84	27.9	33.8	31.0
BEAVER PASS	3680	4/02/00	70	30.3	58.7	29.7	HERRIG JUNCTION	4850	3/30/00	66	25.3	34.2	26.0
BERNE-MILL CREEK (d)	3170	3/31/00	35	29.3	45.3	27.2	HIGH RIDGE PILLOW	4980	4/01/00	---	26.7	25.5	24.4
BIG CREEK	6750	3/27/00	97	37.3	43.6	45.7	HOLBROOK	4530	3/29/00	32	7.7	9.2	9.0
BIG WHITE MTN CAN.	5510	4/04/00	54	20.0	26.5	19.6	HOODOO BASIN PILLOW	6050	4/01/00	---	39.8	61.4	47.0
BLACK MOUNTAIN	7750	3/29/00	50	13.6	14.0	16.3	HUMBOLDT GLCH PILLOW	4250	4/01/00	---	13.7	18.5	13.3
BLACK PINE PILLOW	7100	4/01/00	---	9.9	15.3	12.7	HURRICANE	4500	3/30/00	47	17.8	56.0	22.1
BLEWETT PASS #2	4270	3/28/00	46	17.8	23.9	15.1	INTERGAARD	6450	3/29/00	24	6.5	7.2	8.6
BLEWETT PASS#2PILLOW	4270	4/01/00	34	13.8	18.8	17.8	ISINTOK LAKE CAN.	5100	3/28/00	22	5.8	9.1	7.1
BLUE LAKE	5900	3/27/00	51	18.6	30.0	25.3	JUNE LAKE PILLOW	3200	4/01/00	---	58.5	74.3	36.3
BRENDA MINE CAN.	4450	4/01/00	---	11.9	18.4	12.8	KELLOGG PEAK	5560	3/30/00	80	32.0	---	31.6
BRIEF	1600	3/29/00	0	.0	5.6	2.5	KISHNEHNN	3890	3/31/00	19	5.9	8.1	7.0
BROOKMERE CAN.	3000	3/31/00	19	3.4	10.7	8.3	KIT CARSON PASTURE	4950	3/30/00	16	5.5	6.4	8.8
BROWN TOP AM	6000	4/01/00	145	56.0	105.4	59.6	KLESILKWA CAN.	3450	3/30/00	30	11.7	21.3	11.9
BRUSH CREEK TIMBER	5000	3/30/00	24	6.8	7.0	9.5	KRAFT CREEK PILLOW	4750	4/01/00	---	15.0	13.5	15.3
BULL MOUNTAIN	6600	3/31/00	16	5.5	6.8	6.4	LESTER CREEK	3100	3/30/00	61	23.2	24.6	23.3
BUMPING LAKE (NEW)	3400	3/28/00	41	16.0	31.3	18.3	LIGHTNING LAKE CAN.	3700	3/31/00	34	11.4	21.0	12.4
BUMPING RIDGE PILLOW	4600	4/01/00	---	30.0	56.3	21.2	LOGAN CREEK	4300	3/30/00	22	6.0	6.3	7.1
BUNCHGRASS MDW PILLOW	5000	4/01/00	---	33.0	47.8	26.6	LOLO PASS PILLOW	5240	4/01/00	79	31.8	46.3	32.3
BUTTE CREEK	4070	3/30/00	27	8.9	7.8	9.0	LONE PINE PILLOW	3800	4/01/00	---	51.7	84.5	32.1
CARMI CAN.	4100	4/04/00	14	4.2	4.4	5.9	LOOKOUT PILLOW	5140	4/01/00	---	31.7	45.7	33.4
CAYUSE PASS	5300	4/01/00	---	91.5E	133.7	82.4	LOST HORSE	5940	3/22/00	77	27.6	37.4	32.3
CEDAR GROVE	3760	3/30/00	31	10.8	17.3	12.2	LOST HORSE MTN CAN.	6300	3/30/00	28	7.8	11.6	9.3
CHESSMAN RESERVOIR	6200	3/28/00	5	1.6	1.4	3.9	LOST HORSE PILLOW	5000	4/01/00	---	21.0	35.2	26.4
CHEWALAH	4930	3/29/00	64	21.8	--	16.1	LOST LAKE PILLOW	6110	4/01/00	---	56.4	77.2	63.2
CHICKEN CREEK	4060	3/30/00	44	16.9	19.6	14.0	LOWER SANDS CREEK #2	3120	3/28/00	59	22.6	26.0	19.6
CHIWAUKUM G.S.	2500	3/31/00	18	8.4	18.1	8.9	LUBRECHT FOREST NO 3	5450	3/29/00	17	5.1	5.0	6.8
CITY CABIN	2390	4/01/00	---	13.3E	16.5	13.6	LUBRECHT FOREST NO 4	4650	3/29/00	2	.7	1.0	2.1
COLOCUM PASS	5370	3/27/00	47	14.9	26.2	16.5	LUBRECHT FOREST NO 6	4040	3/28/00	3	.8	1.2	2.3
COMBINATION PILLOW	5600	4/01/00	---	3.4	4.6	5.8	LUBRECHT HYDROPLOT	4200	3/30/00	9	2.7	5.0	4.2
COPPER BOTTOM PILLOW	5200	4/01/00	---	11.5	14.3	11.7	LUBRECHT PILLOW	4680	4/01/00	---	.9	3.3	5.1
COPPER CAMP	6950	3/26/00	67	25.4	39.1	29.9	LYMAN LAKE PILLOW	5900	4/01/00	---	60.8	88.5	56.9
COPPER CREEK	5700	3/26/00	36	14.8	14.5	14.2	LYNN LAKE	4000	3/30/00	73	29.7	17.3	22.0
COPPER MOUNTAIN	7700	4/01/00	32	11.6	10.6	11.4	MARIAS PASS	5250	3/30/00	42	15.2	20.7	17.4
CORNER CREEK	3150	3/29/00	27	9.1	11.7	6.1	MARTEN LAKE AM	3600	4/01/00	---	83.6E	118.5	73.4
CORRAL PASS PILLOW	6000	4/01/00	---	37.9	51.0	32.6	MCCULLOCH CAN.	4200	3/31/00	21	6.1	7.2	6.3
COTTONWOOD CREEK	6400	3/29/00	30	7.8	8.0	8.8	MEADOWS CABIN	1900	4/01/00	10	3.8	7.3	4.8
COUGAR MTN. PILLOW	3200	4/01/00	---	20.3	26.8	18.8	MEADOWS PASS PILLOW	3240	4/01/00	---	32.1	36.8	24.9
COX VALLEY	4500	3/30/00	100	39.5	95.8	39.5	MERRITT	2140	3/31/00	20	8.1	23.3	12.8
COYOTE HILL	4200	3/30/00	25	8.8	10.2	9.5	MICA CREEK PILLOW	4750	4/01/00	---	29.3	36.6	--
DALY CREEK PILLOW	5780	4/01/00	---	9.5	13.8	11.9	MINERAL CREEK	4000	3/30/00	53	20.2	22.2	17.5
DEER PARK	5200	3/30/00	49	20.2	48.0	20.9	MISSEZULA MTN CAN.	5080	3/28/00	24	6.8	12.6	9.2
DESERT MOUNTAIN	5600	3/27/00	40	14.2	15.8	15.5	MISSION RIDGE	5000	3/27/00	49	18.7	28.1	16.5
DEVILS PARK AM	5900	4/01/00	103	42.0	64.8	42.9	MONASHEE PASS CAN.	4500	3/26/00	43	13.6	16.4	13.6
DISCOVERY BASIN	7050	3/28/00	31	8.2	9.6	11.3	MOOSE CREEK PILLOW	6200	4/01/00	---	16.3	21.8	18.0
DIX HILL	6400	4/02/00	28	9.9	8.4	11.3	MORRISEY RIDGE CAN.	6100	4/01/00	---	22.8	33.2	28.6
DOMMERIE FLATS	2200	3/29/00	8	3.0	4.7	4.3	MORSE LAKE PILLOW	5400	4/01/00	---	61.6	91.1	47.2
EAST FORK R.S.	5400	3/23/00	18	5.6	4.4	5.6	MOSES MTN PILLOW	4800	4/01/00	---	20.0	35.5	15.5
EAST RAGGED SADDLE	3740	4/01/00	63	26.9	28.1	20.4	MOQUITO RDG PILLOW	5200	4/01/00	---	40.2	51.3	37.3
EASY PASS AM	5200	4/01/00	---	97.0E	125.0	82.9	MOULTON RESERVOIR	6850	3/30/00	22	7.0	6.4	6.8
EL DORADO MINE	7800	3/25/00	48	15.2	20.5	21.6	MOUNT CRAG PILLOW	4050	4/01/00	---	35.6	77.5	31.5
ELBOW LAKE PILLOW	3200	4/01/00	104	50.6	73.1	32.0	MT. KOBIA CAN.	5500	3/30/00	35	10.4	20.3	12.7
EMERY CREEK	4350	3/27/00	43	16.8	17.8	15.7	MOUNT GARDNER	3300	3/29/00	40	15.1	29.0	14.1
EMERY CREEK PILLOW	4350	4/01/00	---	15.3	16.1	16.3	MOUNT GARDNER PILLOW	2860	4/01/00	---	17.1	26.7	14.0
ENDERBY CAN.	5800	4/01/00	126	47.6	56.3	38.9	MUTTON CREEK #1	5700	3/31/00	44	13.7	28.1	13.2
ESPERON CK. MID CAN.	4250	4/01/00	37	12.6	19.9	14.3	N.F. ELK CR PILLOW	6250	4/01/00	---	12.2	13.4	13.2
ESPERON CK. UP CAN.	5050	4/01/00	44	14.6	25.0	17.0	NEW HOZOMEEN LAKE	2800	4/01/00	24	9.2	20.7	10.4
FARRON CAN.	4000	3/29/00	43	14.8	13.7	13.3	NEZ PERCE CMF PILLOW	5650	4/01/00	---	14.7	16.9	15.1
FATTY CREEK	5500	3/27/00	63	21.4	25.1	24.3	NEZ PERCE PASS	6570	3/30/00	49	17.3	15.8	19.2
FISH CREEK	8000	3/30/00	31	8.8	11.4	9.9	NOISY BASIN PILLOW	6040	4/01/00	---	41.9	45.3	40.7
FISH LAKE	3370	3/28/00	88	39.1	54.4	31.4	NORTH FORK JOCKO	6330	3/27/00	105	40.5	48.1	44.9
FISH LAKE PILLOW	3370	4/01/00	---	35.2	55.0	31.9	OLALLIE MDWS PILLOW	3960	4/01/00	---	56.1	86.6	53.5
FLATTOP MTN PILLOW	6300	4/01/00	---	41.4	58.8	47.1	OLALLIE MEADOWS	3630	4/01/00	---	45.0E	58.1	44.8
FLEECER RIDGE	7500	3/31/00	30	10.0	13.2	11.3	OPHIR PARK	7150	4/02/00	44	13.8	16.8	18.0
FOURTH OF JULY SUM	3200	4/04/00	14	4.7	9.0	6.8	OYAMA LAKE CAN.	4100	4/01/00	25	7.4	7.8	6.4
FRED BURR PASS	8000	3/27/00	58	20.8	25.2	25.4	PALISADE CREEK	8250	4/03/00	70	28.7	37.1	29.9
FREEZEOUT CR. TRAIL	3500	4/01/00	31	11.6	22.7	11.5	PARADISE PARK PILLOW	5500	4/01/00	---	79.6	99.2	62.1
FROHNER MDWS PILLOW	6480	4/01/00	---	6.1	7.2	8.7	PARK CR RIDGE PILLOW	4600	4/01/00	113	49.5	72.1	41.6
GIBBONS PASS	7100	3/23/00	57	20.0	26.0	23.2	PETERSON MDW PILLOW	7200	4/01/00	---	7.9	11.4	1

**B A S I N   S U M M A R Y   O F  
S N O W   C O U R S E   D A T A**

APRIL 2000

SNOW COURSE	ELeVEL	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE	ELeVEL	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
PIKE CREEK	5930	3/30/00	60	21.5	29.3	26.7	STORM LAKE	7780	3/27/00	34	10.4	15.5	14.0
PIKE CREEK PILLOW	5930	4/01/00	---	23.4	35.5	27.9	STRANGER MOUNTAIN	4230	3/29/00	45	15.8	19.3	12.2
PIPESTONE PASS	7200	4/02/00	17	5.2	6.4	5.9	STRYKER BASIN	6180	3/30/00	87	30.6	39.2	34.6
POPE RIDGE PILLOW	3540	4/01/00	50	18.8	28.5	15.7	STUART MOUNTAIN	7400	3/27/00	76	29.9	39.2	32.9
POSTILL LAKE CAN.	4200	3/31/00	27	8.2	10.3	8.7	SUMMERLAND RES CAN.	4200	3/28/00	26	7.6	10.4	9.1
POTATO HILL PILLOW	4500	4/01/00	---	27.5	50.8	25.3	SUMMIT G.S.	4600	3/30/00	34	11.1	10.6	8.1
QUARTZ PEAK PILLOW	4700	4/01/00	---	28.1	30.7	21.9	SUNSET PILLOW	5540	4/01/00	---	25.2	27.7	29.9
ROUND TOP MTN	4020	3/31/00	46	18.8	17.0	--	SURPRISE LKS PILLOW	4250	4/01/00	---	63.8	84.2	44.2
RAGGED RIDGE	3330	3/31/00	22	9.4	11.2	3.5	TEN MILE LOWER	6600	3/28/00	20	4.6	4.4	7.8
RAINY PASS PILLOW	4780	4/01/00	---	38.5	61.7	38.0	TEN MILE MIDDLE	6800	3/28/00	30	7.2	9.7	12.2
REX RIVER PILLOW	1900	4/01/00	86	39.3	44.7	27.6	THUNDER BASIN	4200	4/01/00	64	23.4	42.8	21.7
ROCKER PEAK PILLOW	8000	4/01/00	---	10.8	13.8	15.3	TINKHAM CREEK PILLOW	3000	4/01/00	---	30.1	15.6	19.9
ROLAND SUMMIT	5120	3/29/00	91	38.5	54.1	37.3	TOGO	3370	4/01/00	---	13.2E	17.8	10.8
RUSTY CREEK	4000	3/31/00	19	5.6	8.5	5.9	TOUCHET #2 PILLOW	5530	4/01/00	---	36.1	56.0	31.9
SADDLE MTN PILLOW	7900	4/01/00	---	19.9	29.8	26.1	TRINKUS LAKE	6100	3/27/00	102	41.6	45.2	43.4
SAGE CREEK SADDLE	4080	3/29/00	58	20.9	25.0	17.8	TROUGH #2 PILLOW	5310	4/01/00	---	10.7	16.1	9.7
SALEMON MDWS PILLOW	4500	4/01/00	---	8.2	15.7	9.4	TROUT CREEK CAN.	5650	3/26/00	26	7.4	10.2	6.9
SASSE RIDGE PILLOW	4200	4/01/00	---	37.0	57.9	32.1	TRUMAN CREEK	4060	3/28/00	11	3.4	3.2	3.5
SAVAGE PASS PILLOW	6170	4/01/00	---	24.8	35.7	27.2	TUNNEL AVENUE	2450	3/29/00	48	21.0	37.2	20.8
SAWMILL RIDGE	4700	3/30/00	88	32.7	38.0	36.3	TV MOUNTAIN	6800	3/27/00	47	15.9	22.2	19.2
SHEEP CANYON PILLOW	4050	4/01/00	---	51.7	77.9	39.8	TWELVEMILE PILLOW	5600	4/01/00	---	17.6	21.1	18.6
SILVER STAR MTN CAN.	5600	3/26/00	96	35.1	38.3	28.6	TWIN CAMP	4100	3/30/00	67	29.7	28.8	25.1
SKALKAHO PILLOW	7260	4/01/00	---	21.4	31.2	24.9	TWIN CREEKS	3580	3/27/00	32	12.4	8.4	10.3
SKITWISH RIDGE	5110	3/28/00	98	37.1	44.9	31.2	TWIN LAKES PILLOW	6400	4/01/00	---	40.6	55.0	40.4
SKOOKUM CREEK PILLOW	3920	4/01/00	---	41.7	50.2	29.3	TWIN SPIRIT DIVIDE	3480	4/01/00	37	13.3	17.4	13.9
SLIDE ROCK MOUNTAIN	7100	3/25/00	37	11.0	21.5	16.7	UPPER HOLLAND LAKE	6200	3/27/00	94	36.2	35.8	35.4
SPENCER MDW PILLOW	3400	4/01/00	---	49.9	73.2	29.6	UPPER WHEELER PILLOW	4400	4/01/00	---	9.3	20.5	13.6
SPIRIT LAKE PILLOW	3100	4/01/00	---	11.9	25.1	3.6	VASEUX CREEK CAN.	4250	3/30/00	20	5.7	4.8	6.3
SPOTTED BEAR MTN.	7000	3/27/00	39	13.9	12.8	14.9	WARM SPRINGS PILLOW	7800	4/01/00	---	18.4	23.2	22.3
STAHL PEAK PILLOW	6030	4/01/00	---	33.3	43.7	35.1	WATSON LAKES AM	4500	4/01/00	---	77.0E	105.0	64.9
STAMPEDE PASS PILLOW	3860	4/01/00	---	50.5	63.0	44.4	WEASEL DIVIDE	5450	3/31/00	83	32.8	41.8	33.8
STEMILT SLIDE	5000	3/27/00	38	14.0	22.7	12.8	WELLS CREEK PILLOW	4200	4/01/00	---	35.2	56.2	39.0
STEMPLE PASS	6600	3/29/00	36	10.7	12.4	10.6	WHITE PASS ES PILLOW	4500	4/01/00	---	25.1	35.1	22.9
STEVENS PASS PILLOW	4070	4/01/00	---	34.1	56.7	42.3	WHITE ROCKS MTN CAN.	7200	4/03/00	56	19.9	39.2	23.0
STEVENS PASS SAND SD	3700	3/31/00	92	35.6	53.1	33.7							



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Washington State  
Snow, Water and Climate Services

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**Helpful Internet Addresses**

**NRCS Snow Survey and Climate Services Homepages**

Washington:

<http://www.wa.nrcs.usda.gov/nrcs/CoopSnoSrvy.htm>

Oregon:

<http://crystal.or.nrcs.usda.gov/snowsurveys>

Idaho:

<http://idsnow.id.nrcs.usda.gov>

National Water and Climate Center (NWCC):

<http://www.wcc.nrcs.usda.gov>

NWCC Anonymous FTP Server:

<ftp.wcc.nrcs.usda.gov>

**USDA-NRCS Agency Homepages**

Washington:

<http://www.wa.nrcs.usda.gov/nrcs>

NRCS National:

<http://www.ftw.nrcs.usda.gov>



Natural Resources Conservation Service

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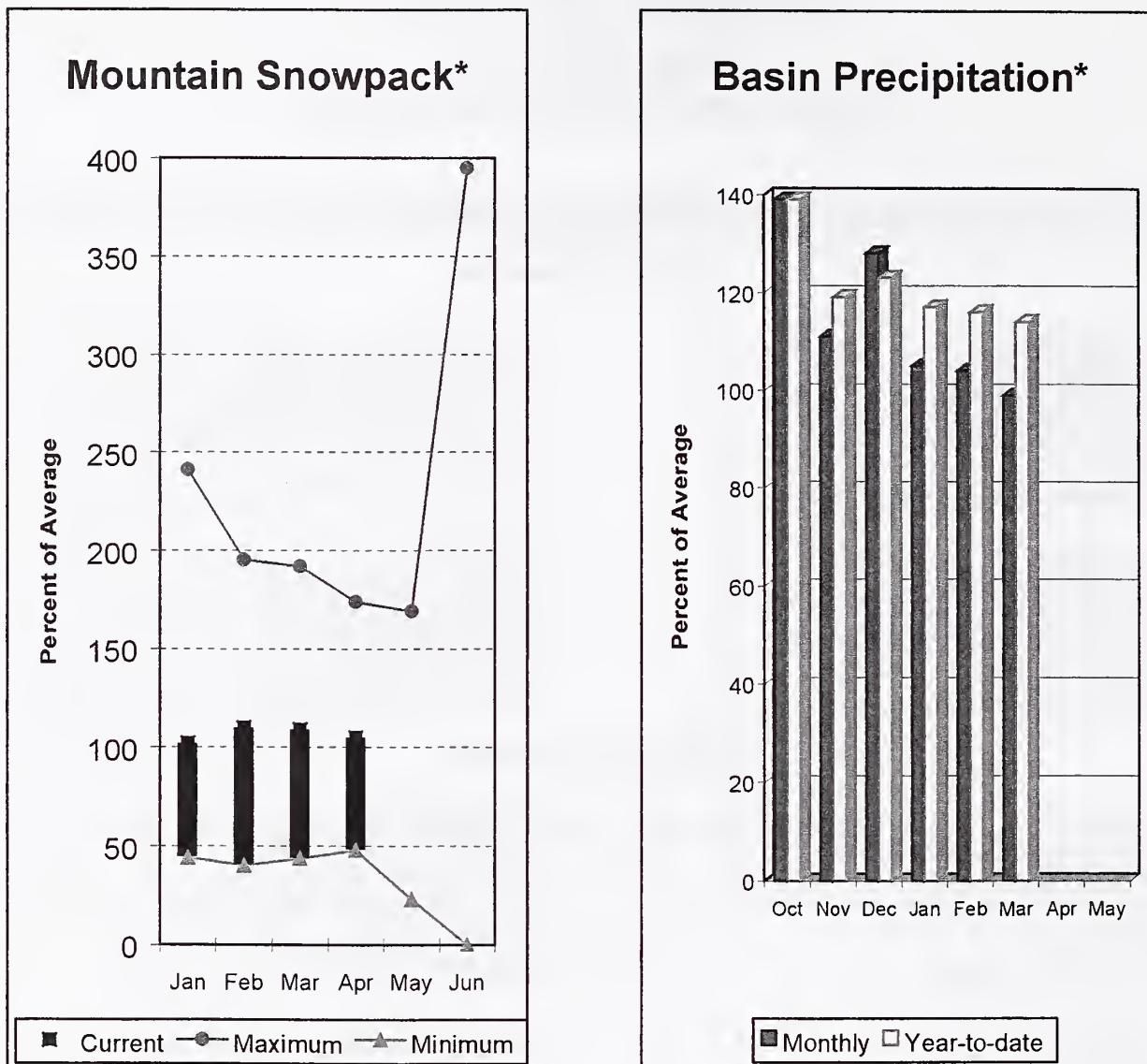
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# Spokane River Basin



\*Based on selected stations

The April 1 forecasts for summer runoff within the Spokane River Basin are 99% of average near Post Falls and 102% at Long Lake. The forecast is based on a basin snowpack that is 105% of average and precipitation that is 114% of average for the water year. Precipitation for March was near normal at 99% of average. Streamflow on the Spokane River at Long Lake, was 122% of average for March. April 1 storage in Coeur d'Alene Lake, was 171,500-acre feet, 101% of average and 72% of capacity. Snowpack at Quartz Peak SNOTEL site contained 28.1 inches of water, compared to the average April 1 reading of 21.9 inches. Average temperatures in the Spokane basin were near normal.

# Spokane River Basin

## Streamflow Forecasts - April 1, 2000

<===== Drier ===== Future Conditions =====> Wetter =====		Chance Of Exceeding *						
Forecast Point	Forecast Period	90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)	
SPOKANE near Post Falls (2)	APR-SEP	2192	2483	2680	99	2877	3168	2720
	APR-JUL	2182	2461	2650	101	2839	3118	2627
SPOKANE at Long Lake	APR-JUL	2394	2731	2960	102	3189	3526	2905
	APR-SEP	2591	2948	3190	102	3432	3789	3128

### SPOKANE RIVER BASIN

Reservoir Storage (1000 AF) - End of March

### SPOKANE RIVER BASIN

Watershed Snowpack Analysis - April 1, 2000

Reservoir	Usable Capacity	*** Usable Storage ***		Watershed	Number of Data Sites	This Year	as % of Last Yr	
	This Year	Last Year	Avg					
COEUR D'ALENE	238.5	171.5	236.5	170.1	SPOKANE RIVER	18	79	105
				NEWMAN LAKE	2	89	148	

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

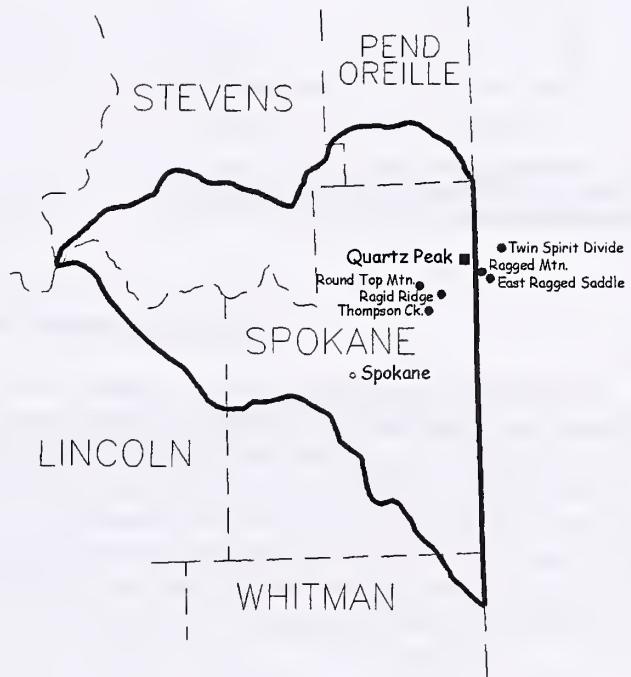
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

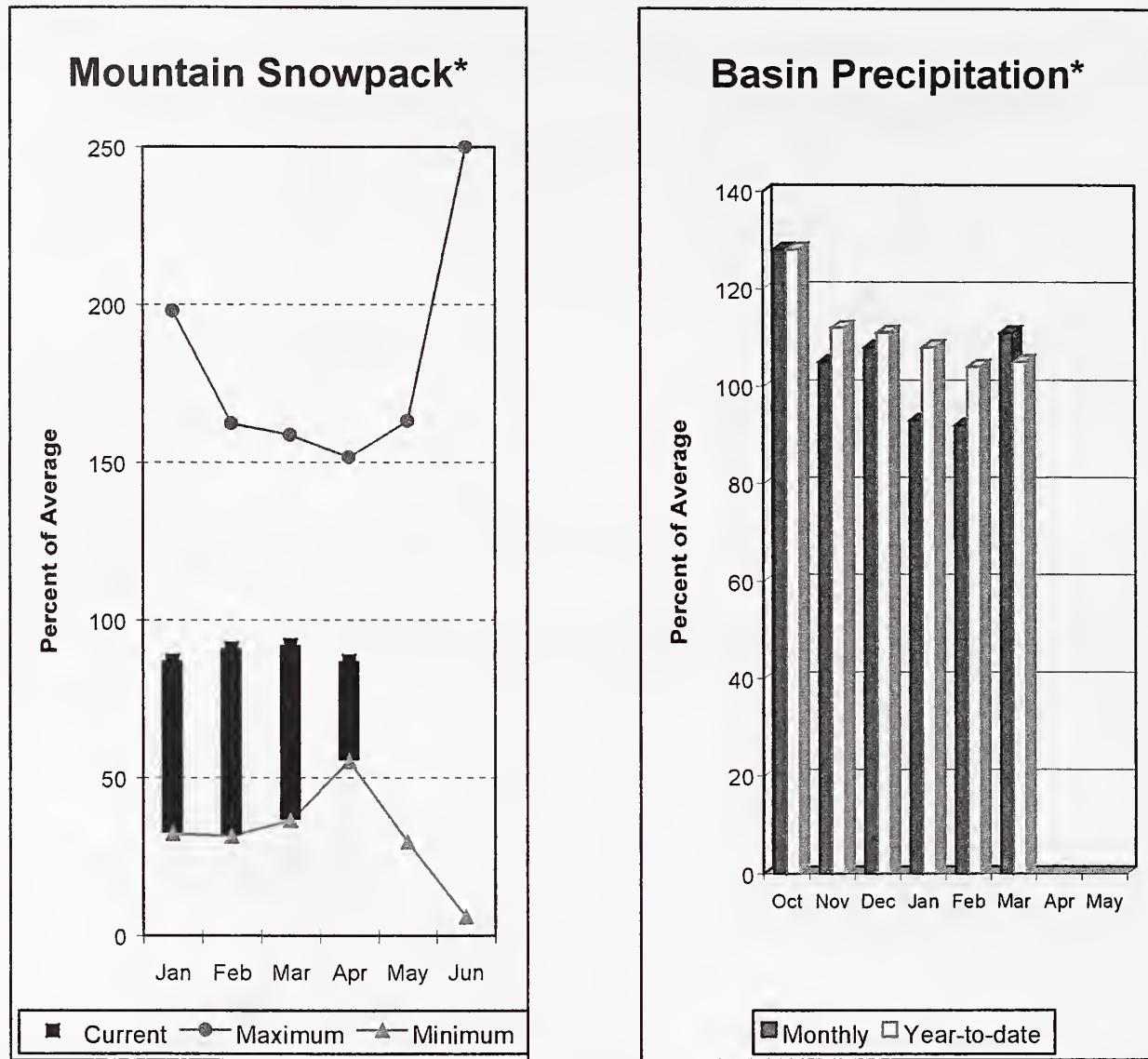
(2) - The value is natural flow - actual flow may be affected by upstream water management.

**SPOKANE RIVER BASIN**  
Percent of Average  
April 1, 2000

Snowpack - 105%  
Precipitation - 114%  
Reservoir - 101%



# Colville - Pend Oreille River Basins



\*Based on selected stations

The April – September average forecast for the Kettle River streamflow is 112%, Colville at Kettle Falls is 127%, Chamokane Creek near Long Lake is 136% and Priest River near the town of Priest River is 108%. March streamflow was 88% of average on the Pend Oreille River, 122% on the Columbia at the International Boundary and 112% on the Kettle River. April 1 snow cover was 87% of average in the Pend Oreille Basin, 126% in the Colville River Basin and 107% in the Kettle River Basin. Precipitation during March was 111% of average, bringing the year-to-date precipitation to 105% of average. Reservoir storage in Roosevelt and Banks lakes was reported to be 176% of average and 64% of capacity on April 1. Average temperatures were near normal.

# Colville - Pend Oreille River Basins

## Streamflow Forecasts - April 1, 2000

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions =====>=====						
		Chance Of Exceeding *			30-Yr Avg.			
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
PEND OREILLE Lake Inflow (1,2)	APR-JUL	9448	11272	12100	92	12928	14752	13150
	APR-SEP	10298	12294	13200	92	14106	16102	14370
	APR-JUN	7995	9718	10500	92	11282	13005	11390
PRIEST near Priest River (1,2)	APR-JUL	759	849	890	110	931	1021	812
	APR-SEP	791	890	935	108	980	1079	865
PEND OREILLE bl Box Canyon (1,2)	APR-JUL	9770	11441	12200	91	12959	14630	13380
	APR-SEP	10648	12472	13300	91	14128	15952	14590
	APR-JUN	8409	9847	10500	91	11153	12591	11570
CHAMOKANE CREEK near Long Lake	MAY-AUG	7.94	10.12	11.59	136	13.06	15.24	8.52
COLVILLE at Kettle Falls	APR-SEP	130	151	166	127	181	202	131
	APR-JUL	120	140	153	128	166	186	120
	APR-JUN	112	129	141	127	153	170	111
KETTLE near Laurier	APR-SEP	1790	1960	2075	112	2190	2360	1854
	APR-JUL	1728	1878	1979	112	2080	2230	1761
	APR-JUN	1538	1669	1759	111	1849	1980	1585
COLUMBIA at Birchbank (1,2)	APR-JUL	33208	36091	37400	106	38709	41592	35140
	APR-SEP	41349	44960	46600	106	48240	51851	43810
	APR-JUN	24166	26252	27200	106	28148	30234	25670
COLUMBIA at Grand Coulee Dm (1,2)	APR-SEP	59152	65030	67700	104	70370	76248	64850
	APR-JUL	49832	54761	57000	105	59239	64168	54543
	APR-JUN	39415	43256	45000	105	46744	50585	42756

### COLVILLE - PEND OREILLE RIVER BASINS Reservoir Storage (1000 AF) - End of March

### COLVILLE - PEND OREILLE RIVER BASINS Watershed Snowpack Analysis - April 1, 2000

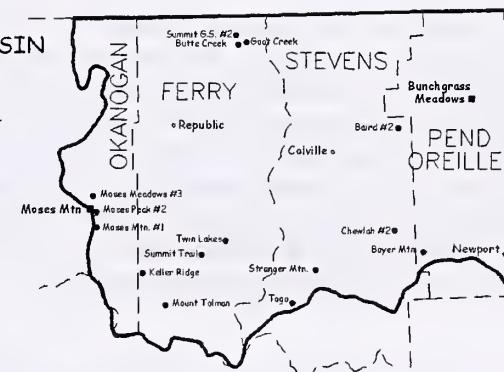
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year	as % of Average
		This Year	Last Year	Avg				
ROOSEVELT	5232.0	3159.6	2086.7	1586.0	COLVILLE RIVER	3	78	130
BANKS	715.0	665.0	681.6	583.0	PEND OREILLE RIVER	103	77	88
					KETTLE RIVER	8	89	107

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

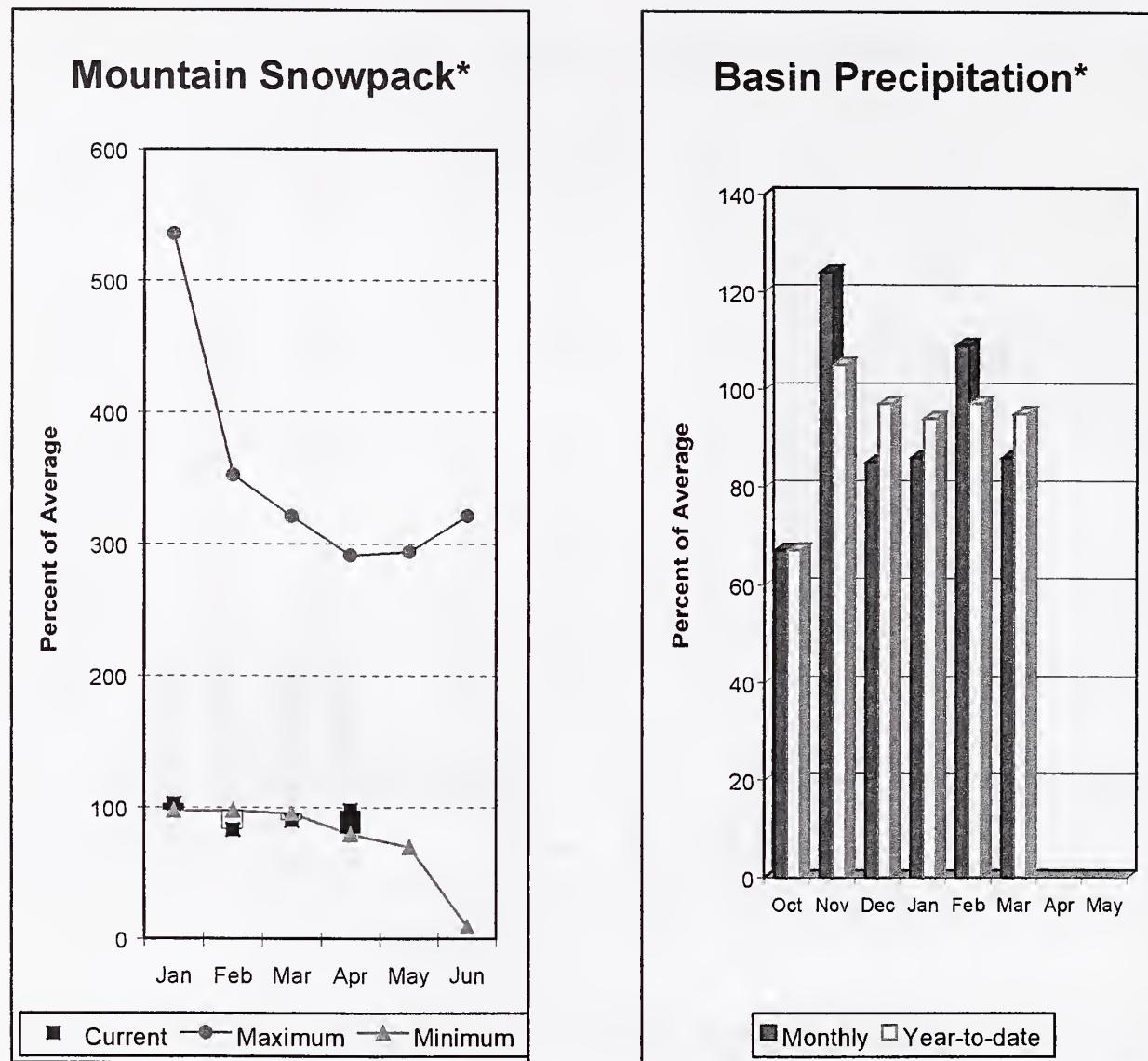
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

COLVILLE-PEND OREILLE BASIN  
Percent of Average  
April 1, 2000  
Snowpack - 87%  
Precipitation - 105%  
Reservoir - 176%



# Okanogan - Methow River Basins



\*Based on selected stations

Average summer runoff forecast for the Okanogan River is 91%, Similkameen River is 87%, Methow River is 99% and Salmon Creek is 91%. April 1 snow cover on the Okanogan was 98% of average and Methow was 95%. Moses Mountain SNOTEL site had an April 1 reading of 129% of average. March precipitation in the Okanogan-Methow was 86% of average, with precipitation for the water year at 95% of average. March streamflow for the Methow River was 98% of average, 67% for the Okanogan River and 80% for the Similkameen. Snow-water-content at the Salmon Meadows SNOTEL, near Conconully, was 8.2 inches. Average for this site is 9.4 inches on April 1. Combined storage in the Conconully Reservoirs was 19,600-acre feet, which is 83% of capacity and 131% of the April 1 average. Temperatures were slightly above normal for the past month.

*For more information contact your local Natural Resources Conservation Service office.*

# Okanogan - Methow River Basins

## Streamflow Forecasts - April 1, 2000

Forecast Point	Forecast Period	Drier				Future Conditions			Wetter			
		Chance Of Exceeding *				30-Yr Avg.						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)				
SIMILKAMEEN near Nighthawk (1)	APR-JUL	814	1035	1135	87	1235	1456	1304				
	APR-SEP	883	1115	1220	87	1325	1557	1399				
	APR-JUN	678	889	985	89	1081	1292	1113				
OKANOGAN near Tonasket (1)	APR-JUL	778	1161	1335	91	1509	1892	1466				
	APR-SEP	861	1287	1480	91	1673	2099	1623				
	APR-JUN	668	979	1120	91	1261	1572	1233				
SALMON CREEK near Conconully	APR-JUL	5.6	12.6	17.3	91	22	29	19.1				
	APR-SEP	5.8	13.1	18.1	91	23	30	20				
METHOW RIVER near Pateros	APR-SEP	813	882	930	99	978	1047	942				
	APR-JUL	760	823	865	99	907	970	873				
	APR-JUN	640	698	738	99	778	836	746				

## OKANOGAN - METHOW RIVER BASINS Reservoir Storage (1000 AF) - End of March

## OKANOGAN - METHOW RIVER BASINS Watershed Snowpack Analysis - April 1, 2000

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year	as % of Last Yr	Average
		This Year	Last Year	Avg					
SALMON LAKE	10.5	7.4	7.4	8.0	OKANOGAN RIVER	23	66	98	
CONCONULLY RESERVOIR	13.0	12.2	11.7	7.0	OMAK CREEK	1	56	129	
					SANPOIL RIVER	0	0	0	
					SIMILKAMEEN RIVER	4	57	71	
					TOATS COULEE CREEK	1	0	0	
					CONCONULLY LAKE	3	53	96	
					METHOW RIVER	5	56	95	

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

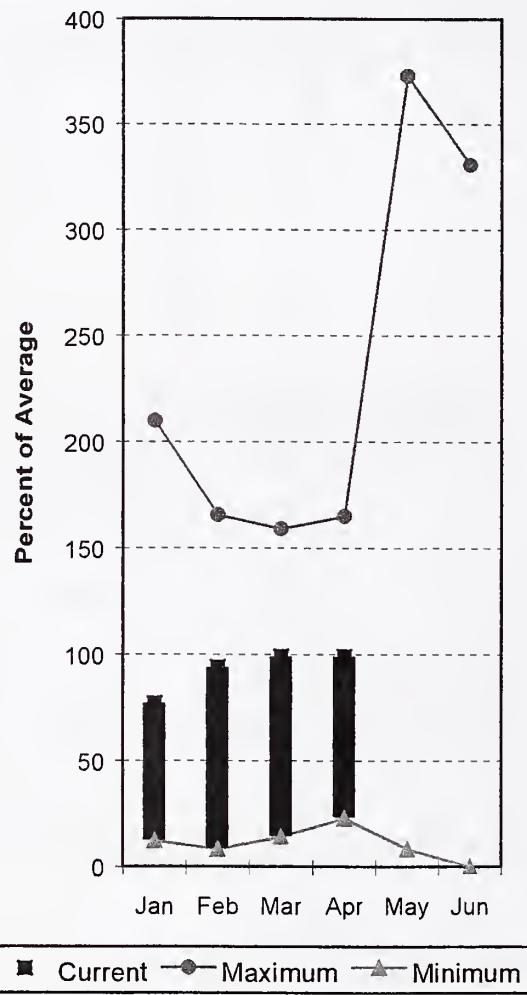
## OKANOGAN-METHOW BASIN Percent of Average April 1, 2000

Snowpack - 98%  
Precipitation - 95%  
Reservoir - 131%

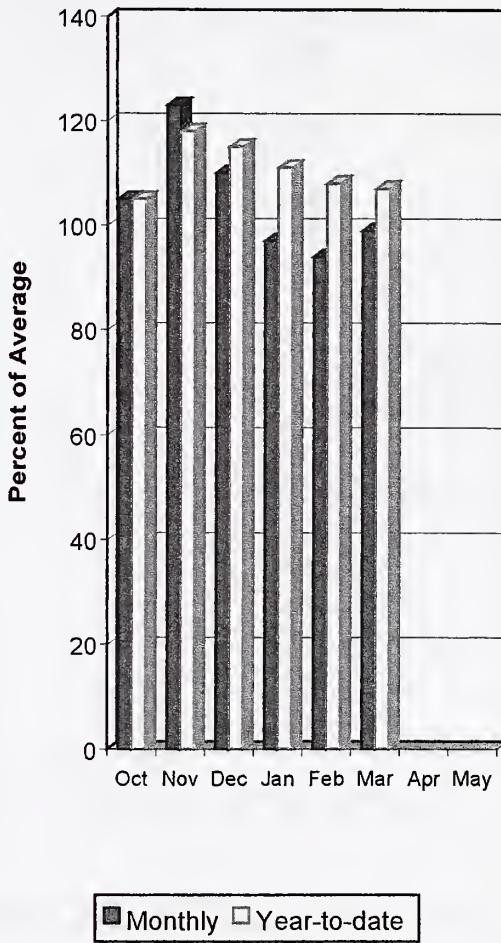


# Wenatchee - Chelan River Basins

## Mountain Snowpack\*



## Basin Precipitation\*



\*Based on selected stations

Precipitation during March was 99% of average in the basin and 107% for the year-to-date. All rivers and streams within the Wenatchee – Chelan river basin are forecast to have near to slightly above average flows for the upcoming April – September runoff period. March average streamflows on the Chelan River were 84% and on the Wenatchee River 61%. April 1 average snowpack in Wenatchee Basin was 101%, in Chelan Basin was 107%, Colockum Ridge was 98%; and Stemilt Creek was 88%. Snowpack in the Entiat River Basin was near normal. Reservoir storage in Lake Chelan was 277,100-acre feet, 131% of April 1 average and 41% of capacity. Lyman Lake SNOTEL had the most snow water with 60.8 inches of water. This site would normally have 56.9 inches on April 1. Temperatures were near normal for March.

*For more information contact your local Natural Resources Conservation Service office.*

# Wenatchee - Chelan River Basins

## Streamflow Forecasts - April 1, 2000

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions =====>=====				Wetter		
		Chance Of Exceeding		* 30-Yr Avg.				
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.) (1000AF)			
CHELAN RIVER near Chelan	APR-SEP	1024	1105	1160	100	1215	1296	1160
	APR-JUL	929	998	1045	102	1092	1161	1024
	APR-JUN	712	782	830	102	878	948	812
STEHEKIN near STEHEKIN	APR-SEP	739	796	835	101	874	931	827
	APR-JUL	631	677	708	101	739	785	701
	APR-JUN	465	512	543	101	574	621	538
ENTIAT RIVER near Ardenvoir	APR-SEP	238	253	263	116	273	288	227
	APR-JUL	215	229	239	116	249	263	206
	APR-JUN	173	187	196	116	205	219	169
WENATCHEE at Plain	APR-SEP	1083	1168	1226	103	1284	1369	1190
	APR-JUL	986	1054	1100	103	1146	1214	1072
	APR-JUN	797	852	889	103	926	981	864
WENATCHEE R. at Peshastin	APR-SEP	1124	1431	1640	100	1849	2156	1636
	APR-JUL	1034	1311	1500	101	1689	1966	1485
	APR-JUN	841	1064	1216	101	1368	1591	1204
STEMILT nr Wenatchee (miners in)	MAY-SEP	100	126	144	104	162	188	138
ICICLE CREEK near Leavenworth	APR-SEP	346	369	384	112	399	422	344
	APR-JUL	319	337	350	110	363	381	318
	APR-JUN	259	279	293	111	307	327	263
COLUMBIA R. bl Rock Island Dam (2)	APR-SEP	64478	70029	73800	105	77571	83122	70485
	APR-JUL	54724	59414	62600	105	65786	70476	59736
	APR-JUN	43242	46908	49400	105	51892	55558	47007

### WENATCHEE - CHELAN RIVER BASINS Reservoir Storage (1000 AF) - End of March

### WENATCHEE - CHELAN RIVER BASINS Watershed Snowpack Analysis - April 1, 2000

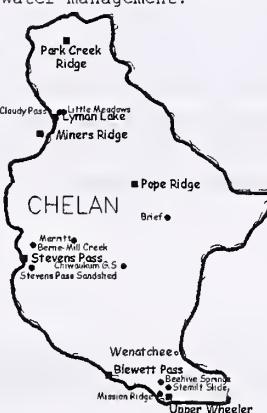
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
		This Year	Last Year	Avg				
CHELAN LAKE	676.1	277.1	179.9	212.1	CHELAN LAKE BASIN	4	69	107
					ENTIAT RIVER	2	55	103
					WENATCHEE RIVER	13	64	101
					SQUILCHUCK CREEK	0	0	0
					STEMILT CREEK	2	54	88
					COLOCKUM CREEK	2	61	98

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

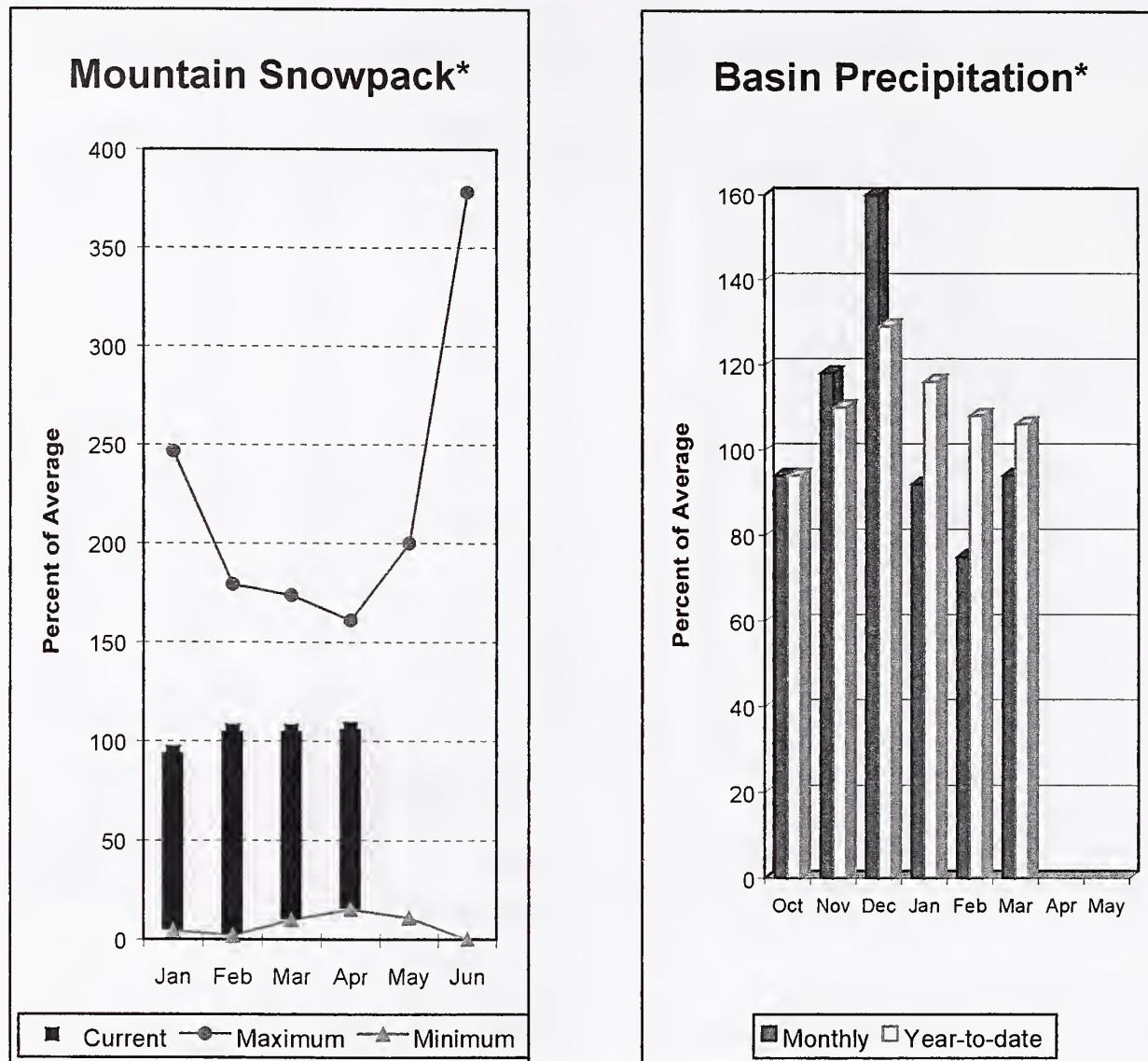
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

**WENATCHEE-CHELAN BASIN  
Percent of Average  
April 1, 2000**  
**Snowpack - 99%**  
**Precipitation - 107%**  
**Reservoir - 131%**



# Upper Yakima River Basin



\*Based on selected stations

April 1 reservoir storage for the Upper Yakima reservoirs was 566,100-acre feet, 96% of average. Forecasts for the Yakima River at Cle Elum are 99% of average. Lake inflows are all expected to be near average this summer. A new forecast, developed for the Teanaway River near Cle Elum, is for 114% average flows. March streamflows within the basin were Yakima near Cle Elum at 64% and Cle Elum River near Roslyn at 55%. April 1 snowpack was 106% based upon 12 snow courses and SNOTEL readings within the Upper Yakima Basin. Precipitation was 94% of average for March and 106% year-to-date for water. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

# Upper Yakima River Basin

## Streamflow Forecasts - April 1, 2000

Forecast Point	Forecast Period	Drier				Future Conditions			Wetter		
		90% (1000AF)		70% (1000AF)		50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)		10% (1000AF)	
		111	121	128	103	135	145	124			
KEECHELUS LAKE INFLOW	APR-JUL	111	121	128	103	135	145	124			
	APR-SEP	118	130	138	102	146	158	135			
	APR-JUN	94	105	112	103	119	130	109			
KACHESS LAKE INFLOW	APR-JUL	98	106	111	100	116	124	111			
	APR-SEP	100	109	115	98	121	130	118			
	APR-JUN	83	93	99	100	105	114	99			
CLE ELUM LAKE INFLOW	APR-JUL	373	395	410	100	425	447	409			
	APR-SEP	403	428	445	99	462	487	448			
	APR-JUN	306	329	345	100	361	384	345			
YAKIMA at Cle Elum	APR-JUN	642	688	720	100	752	798	721			
	APR-JUL	760	802	830	100	858	900	832			
	APR-SEP	826	873	905	99	937	984	915			
TEANAWAY near Cle Elum	APR-JUL	140	152	160	114	168	180	141			
	APR-SEP	129	150	165	114	180	201	145			

## UPPER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of March

## UPPER YAKIMA RIVER BASIN Watershed Snowpack Analysis - April 1, 2000

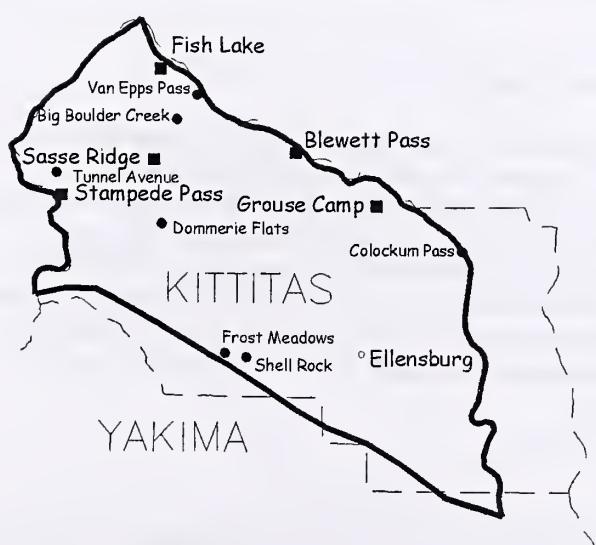
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
KEECHELUS	157.8	77.5	78.5	110.0	UPPER YAKIMA RIVER	12	68	106
KACHESS	239.0	199.5	171.7	187.0				
CLE ELUM	436.9	289.1	223.1	290.0				

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

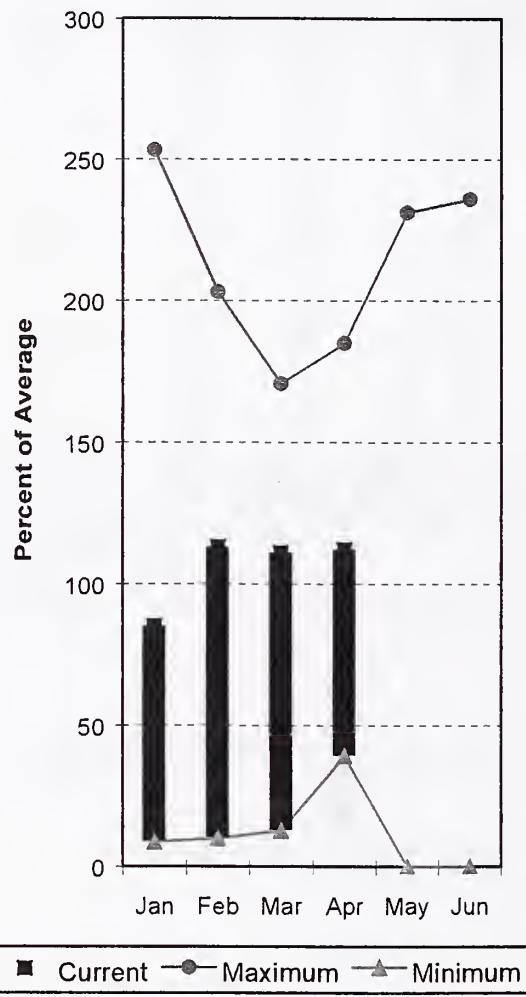


**UPPER YAKIMA BASIN  
Percent of Average  
April 1, 2000**

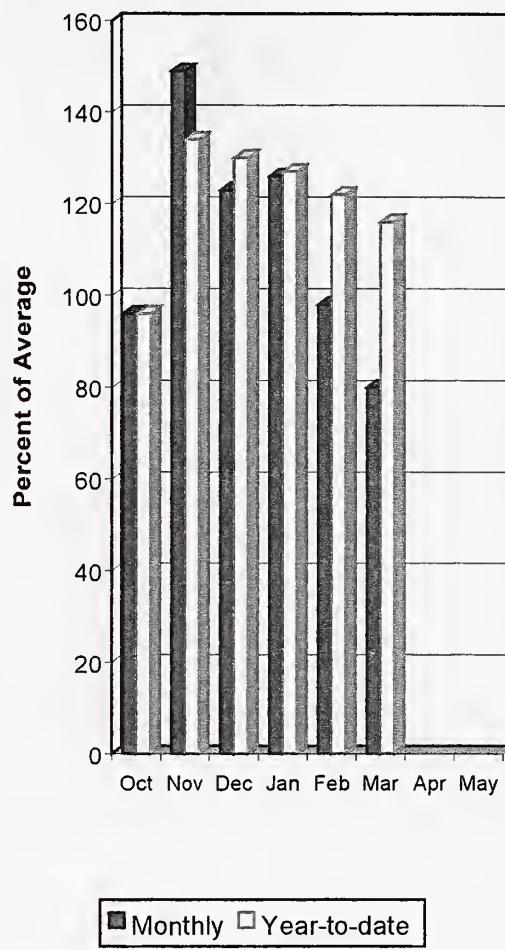
**Snowpack - 106%  
Precipitation - 106%  
Reservoir - 96%**

# Lower Yakima River Basin

## Mountain Snowpack\*



## Basin Precipitation\*



\*Based on selected stations

March average streamflows within the basin were: Yakima River near Parker, 76%; Naches River near Naches, 74%; and Yakima River at Kiona, 92%. April 1 reservoir storage for Bumping and Rimrock reservoirs was 163,500-acre feet, 107% of average. Forecast averages for Yakima River at Parker are 100%; American River near Nile, 97%; Ahtanum Creek, 100%; and Klickitat River near Glenwood, 123%. April 1 snowpack was 117% based upon 7 snow courses and SNOTEL readings within the Lower Yakima Basin. Precipitation was 80% of average for March and 116% year-to-date for water. Average temperatures for the month were near normal. Volume forecasts for Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

*For more information contact your local Natural Resources Conservation Service office.*

# Lower Yakima River Basin

## Streamflow Forecasts - April 1, 2000

Forecast Point	Forecast Period	Drier				Future Conditions			Wetter		
		Chance Of Exceeding *		50% (Most Probable)		30%		10%		30-Yr Avg.	
		90% (1000AF)	70% (1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	(1000AF)	(1000AF)	(1000AF)	
BUMPING LAKE INFLOW	APR-SEP	122	130	135	99	140	148	136			
	APR-JUL	111	118	123	99	128	135	124			
	APR-JUN	88	97	103	99	109	118	104			
AMERICAN RIVER near Nile	APR-SEP	102	109	114	97	119	126	118			
	APR-JUL	94	101	106	97	111	118	109			
	APR-JUN	75	83	89	97	95	104	92			
RIMROCK LAKE INFLOW	APR-SEP	215	230	240	101	250	265	238			
	APR-JUL	184	195	203	102	211	222	200			
	APR-JUN	141	154	163	101	172	185	162			
NACHES near Naches	APR-SEP	752	795	825	99	855	898	832			
	APR-JUL	684	726	755	100	784	826	755			
	APR-JUN	572	619	650	100	681	728	651			
AHTANUM CREEK nr Tampico (2)	APR-SEP	29	39	46	100	53	63	46			
	APR-JUL	27	36	42	100	48	57	42			
	APR-JUN	23	31	36	100	41	49	36			
YAKIMA near Parker	APR-SEP	1831	1932	2000	100	2068	2169	1994			
	APR-JUL	1661	1750	1810	100	1870	1959	1805			
	APR-JUN	1442	1536	1600	100	1664	1758	1597			
KLICKITAT near Glenwood	APR-JUN	120	129	135	123	141	150	110			
	APR-SEP	150	163	172	123	181	194	140			

LOWER YAKIMA RIVER BASIN				LOWER YAKIMA RIVER BASIN			
Reservoir Storage (1000 AF) - End of March				Watershed Snowpack Analysis - April 1, 2000			
Reservoir	Usable Capacity	*** Usable Storage ***	Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average	
	This Year	Last Year					
BUMPING LAKE	33.7	13.4	6.9	11.0			
RIMROCK	198.0	150.1	126.0	142.0			

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

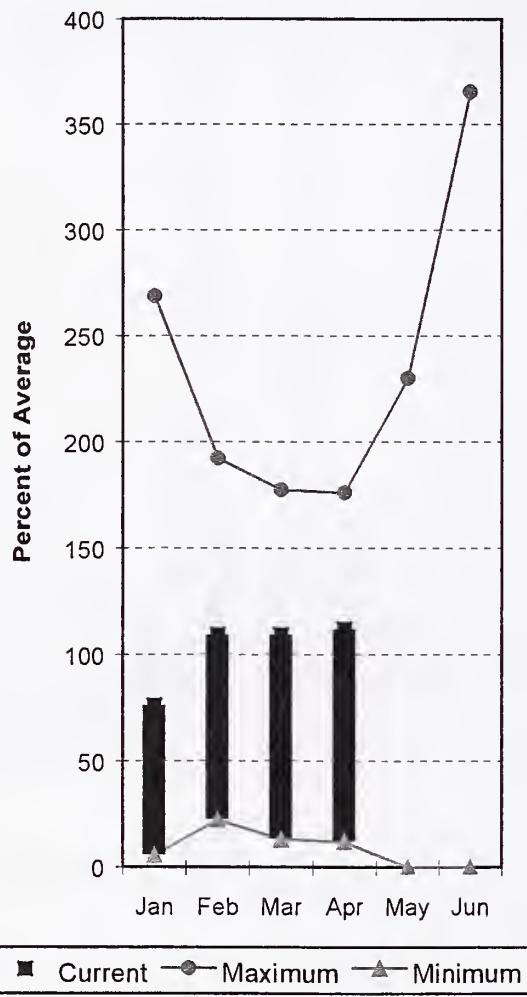


## LOWER YAKIMA BASIN Percent of Average April 1, 2000

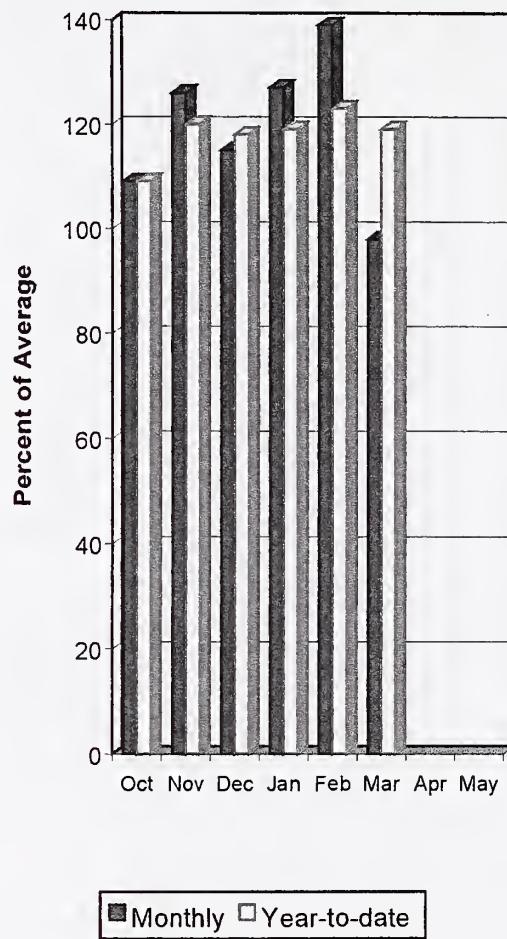
Snowpack - 112%  
Precipitation - 116%  
Reservoir - 107%

# Walla Walla River Basin

## Mountain Snowpack\*



## Basin Precipitation\*



\*Based on selected stations

March precipitation was 98% of average, bringing the year-to-date precipitation to 119% of average. April 1 average snowpack was at 112%. The forecast for the coming summer is for 110% of average streamflow in the South Fork Walla Walla River and 105% for Mill Creek. March streamflow was 148% of average for the Walla Walla River. The Touchet SNOTEL site had 36.1 inches of snow-water-equivalent. The average April 1 reading for this site is 31.9 inches. Average temperatures were 1 degree below normal for the area.

For more information contact your local Natural Resources Conservation Service office.

# Walla Walla River Basin

## Streamflow Forecasts - April 1, 2000

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions =====>=====			Wetter =====		
		Chance Of Exceeding *		50% (Most Probable)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)				
MILL CREEK at Walla Walla	APR-SEP	12.0	15.6	18.0	105	20	24 17.1
	APR-JUL	11.7	15.3	17.7	105	20	24 16.9
	APR-JUN	11.6	15.1	17.5	105	19.9	23 16.7
SF WALLA WALLA near Milton-Freewater	APR-JUL	50	55	58	109	61	66 53
	APR-SEP	63	69	73	110	76	82 66

## WALLA WALLA RIVER BASIN Reservoir Storage (1000 AF) - End of March

## WALLA WALLA RIVER BASIN Watershed Snowpack Analysis - April 1, 2000

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr	Average
		This Year	Last Year	Avg				
					WALLA WALLA RIVER	2	77	112

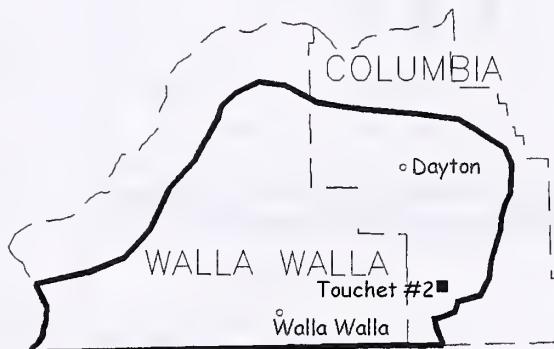
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

**WALLA WALLA BASIN**  
 Percent of Average  
April 1, 2000

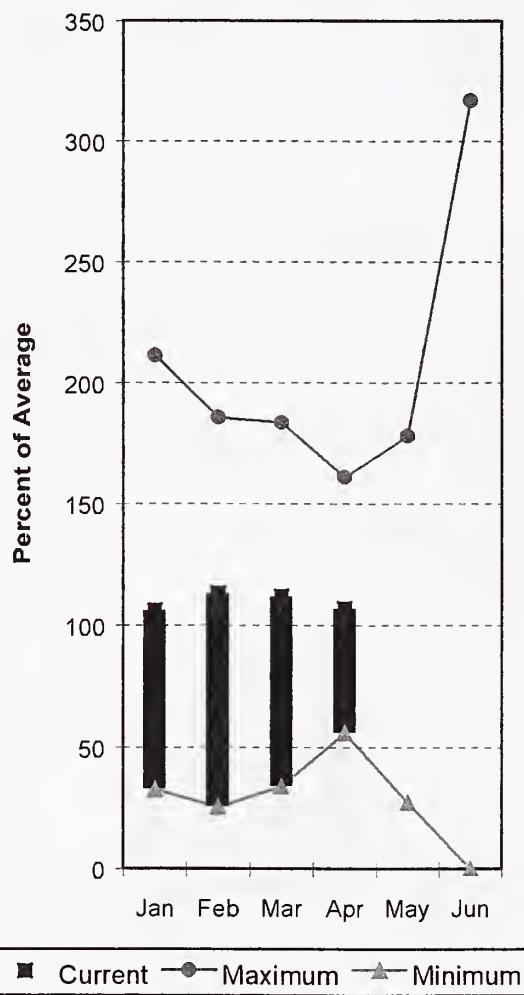
Snowpack - 112%  
 Precipitation - 119%



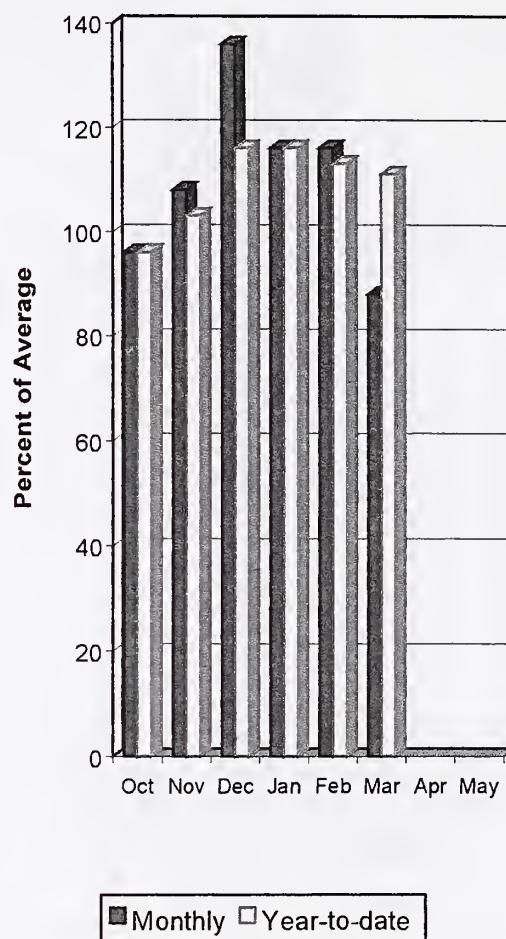
High Ridge ■

# Lower Snake River Basin

## Mountain Snowpack\*



## Basin Precipitation\*



\*Based on selected stations

The April - September forecast is for 89% of average streamflow in the Snake River below Lower Granite Dam, 104% for Grande Ronde at Troy, and 97% for Clearwater River at Spalding. March precipitation was 88% of average, maintaining the year-to-date precipitation at 111% of average. April 1 snowpack was at 107% of average. March streamflow was 93% of average for Snake River below Lower Granite Dam and 126% for Grande Ronde River near Troy. Average temperatures were near normal in the area for the month.

*For more information contact your local Natural Resources Conservation Service office.*

# Lower Snake River Basin

## Streamflow Forecasts - April 1, 2000

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions =====>				Wetter		
		Chance Of Exceeding		* 30-Yr Avg.				
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	(1000AF)		
GRANDE RONDE at Troy (1)	APR-JUL	909	1143	1250	103	1357	1591	1214
	APR-SEP	992	1245	1360	104	1475	1728	1312
CLEARWATER at Spalding (1,2)	APR-JUL	5981	6943	7380	97	7817	8779	7618
	APR-SEP	6335	7342	7800	97	8258	9265	8051
SNAKE blw Lower Granite Dam (1,2)	APR-JUL	14284	17665	19200	89	20735	24116	21650
	APR-SEP	16175	19974	21700	89	23426	27225	24360

## LOWER SNAKE RIVER BASIN Reservoir Storage (1000 AF) - End of March

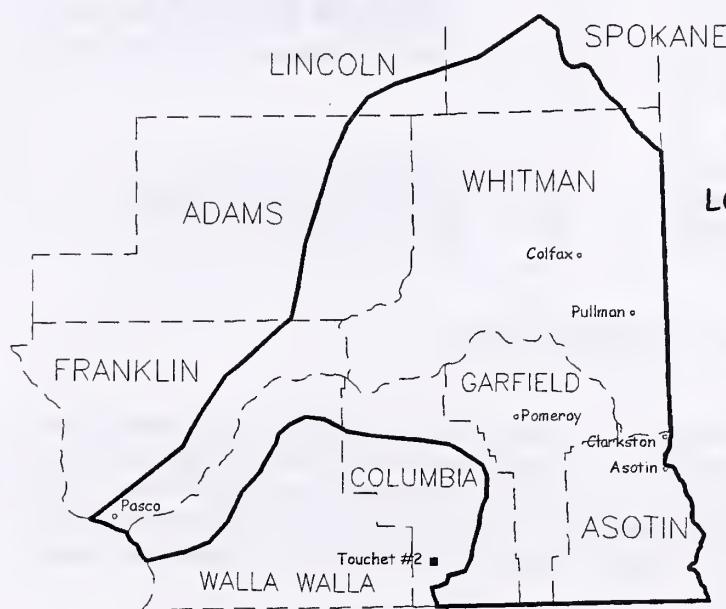
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr	Average
		This Year	Last Year	Avg				
		LOWER SNAKE, GRANDE RONDE						
		17	83	107				

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

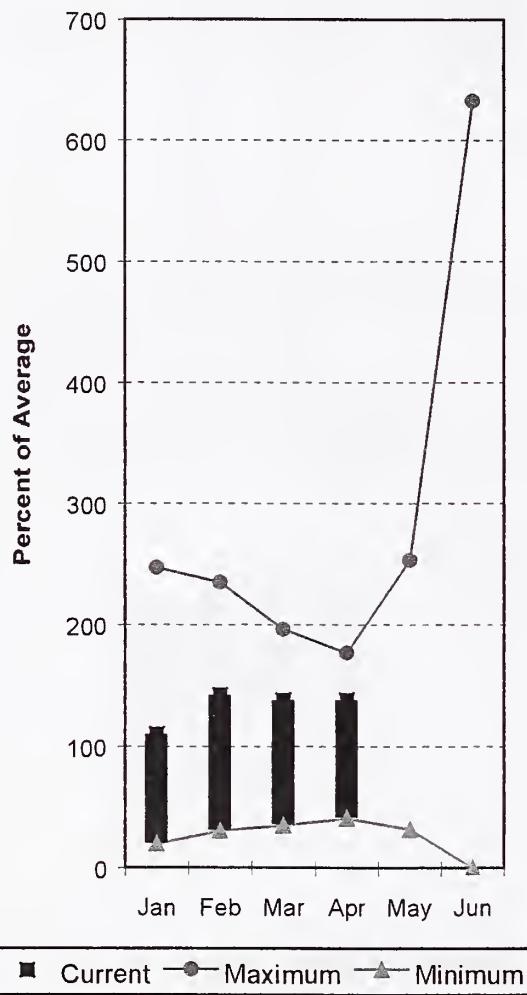


**LOWER SNAKE RIVER BASIN  
Percent of Average  
April 1, 2000**

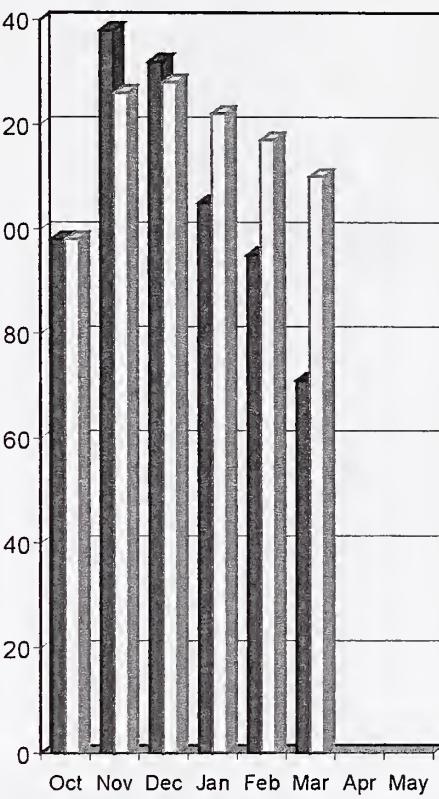
**Snowpack - 107%  
Precipitation - 111%**

# Cowlitz - Lewis River Basins

## Mountain Snowpack\*



## Basin Precipitation\*



\*Based on selected stations

All streams within the basin are forecast to receive near normal flows for the coming summer. March average streamflow for Cowlitz River was 80% and 81% for Lewis River. March precipitation was 71% of average and the water-year average was 110%. April 1 snow cover for Cowlitz River was 118%, and Lewis River was 157% of average. The Paradise Park SNOTEL recorded the most water content for the basin with 79.6 inches of water. Average April 1 water content is 62.1 inches. Average temperatures were near normal during March.

*For more information contact your local Natural Resources Conservation Service office.*

# Cowlitz - Lewis River Basins

## Streamflow Forecasts - April 1, 2000

Forecast Point	Forecast Period	<===== Drier =====		Future Conditions		Wetter =====>		30-Yr Avg. (1000AF)	
		Chance Of Exceeding *		30% (Most Probable)		10%			
		90% (1000AF)	70% (1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)		
LEWIS at Ariel (2)	APR-JUL	883	1048	1160	110	1272	1437	1053	
	APR-SEP	1026	1195	1310	109	1425	1594	1206	
	APR-JUN	767	922	1028	110	1134	1289	935	
COWLITZ R. b1 Mayfield Dam (2)	APR-SEP	1301	1771	2090	106	2409	2879	1970	
	APR-JUL	1151	1561	1840	106	2119	2529	1731	
	APR-JUN	980	1332	1570	106	1808	2160	1477	
COWLITZ R. at Castle Rock (2)	APR-SEP	1800	2372	2760	104	3148	3720	2667	
	APR-JUL	1573	2071	2410	104	2749	3247	2325	
	APR-JUN	1355	1784	2075	104	2366	2795	1995	
KLICKITAT near Glenwood	APR-JUN	120	129	135	123	141	150	110	
	APR-SEP	150	163	172	123	181	194	140	
COLUMBIA R. at The Dalles (2)	APR-SEP	85100	92900	98200	99	103500	111300	98982	
	APR-JUL	72963	79654	84200	99	88746	95437	84760	
	APR-JUN	59109	64522	68200	99	71878	77291	68925	

## COWLITZ - LEWIS RIVER BASINS Reservoir Storage (1000 AF) - End of March

## COWLITZ - LEWIS RIVER BASINS Watershed Snowpack Analysis - April 1, 2000

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
		This Year	Last Year	Avg				
					LEWIS RIVER	4	71	157
					COWLITZ RIVER	7	67	118

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

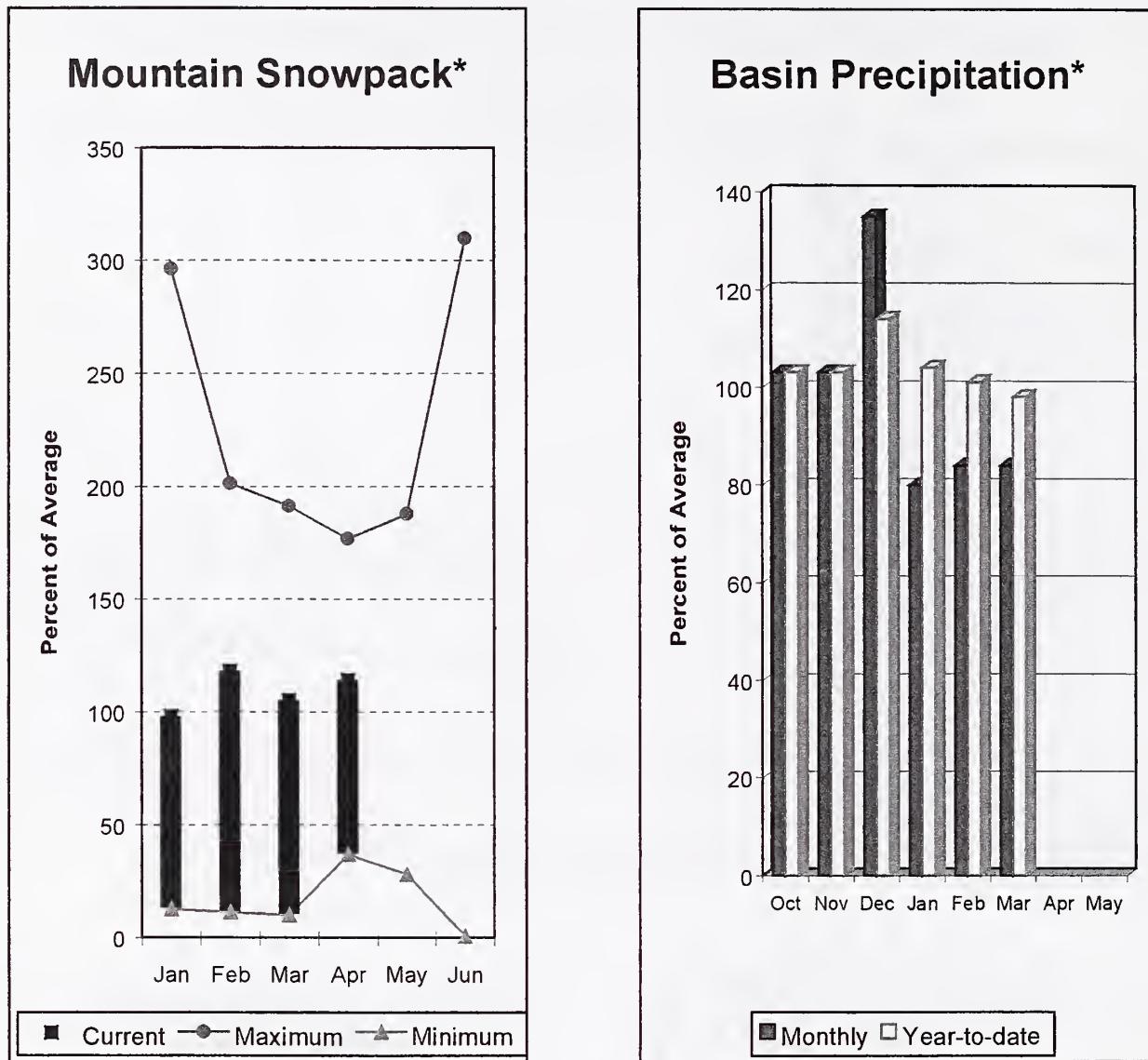


**COWLITZ-LEWIS BASIN  
Percent of Average  
April 1, 2000**

**Snowpack - 138%**

**Precipitation - 110%**

## White - Green – Puyallup River Basins



\*Based on selected stations

Summer runoff is forecast to be 106% of average for the Green River below Howard Hanson Dam and 93% for the White River near Buckley. April 1 snowpack was 118% of average in both White River and Puyallup river basins and 106% in Green River Basin. Water content on April 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 37.9 inches. This site has an April 1 average of 32.6 inches. March precipitation was 84% of average, dropping the water year-to-date to 98% of average for the basins. Average temperatures in the area were slightly below normal for the month.

# White - Green - Puyallup River Basins

## Streamflow Forecasts - April 1, 2000

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>			
		Chance Of Exceeding		* 30-Yr Avg.	
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)	30% (1000AF) (1000AF) (1000AF)
WHITE near Buckley (1,2)	APR-JUL	339	391	415 93	439 491 447
	APR-SEP	415	476	503 93	530 591 542
GREEN below Howard Hanson (1,2)	APR-JUL	222	255	270 105	285 318 257
	APR-SEP	248	285	301 106	317 354 285
	APR-JUN	207	235	248 106	261 289 234

## WHITE - GREEN - PUYALLUP RIVER BASINS Reservoir Storage (1000 AF) - End of March

## WHITE - GREEN - PUYALLUP RIVER BASINS Watershed Snowpack Analysis - April 1, 2000

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
		This Year	Last Year	Avg				
					WHITE RIVER	3	69	118
					GREEN RIVER	7	94	106
					PUYALLUP RIVER	3	69	118

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



## WHITE-GREEN-PUYALLUP BASINS

### Percent of Average

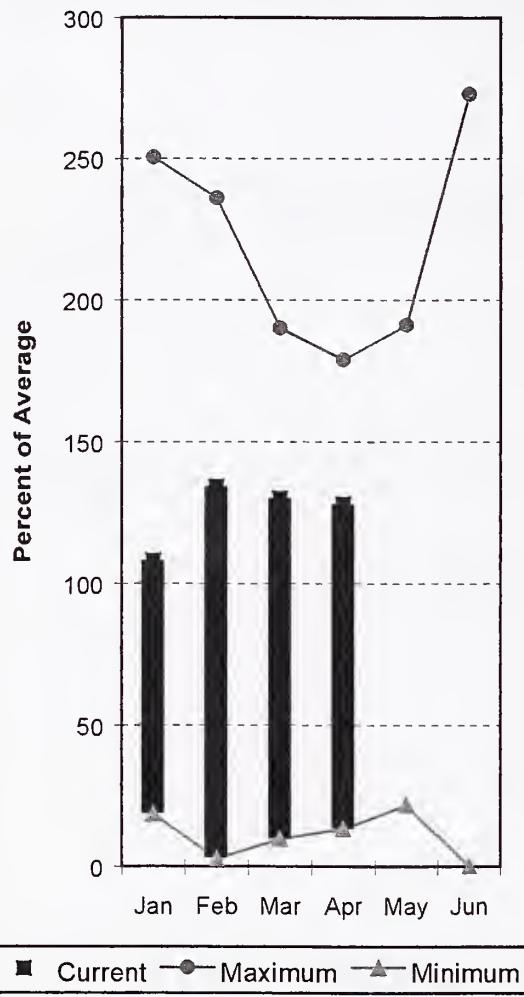
April 1, 2000

Snowpack - 114%

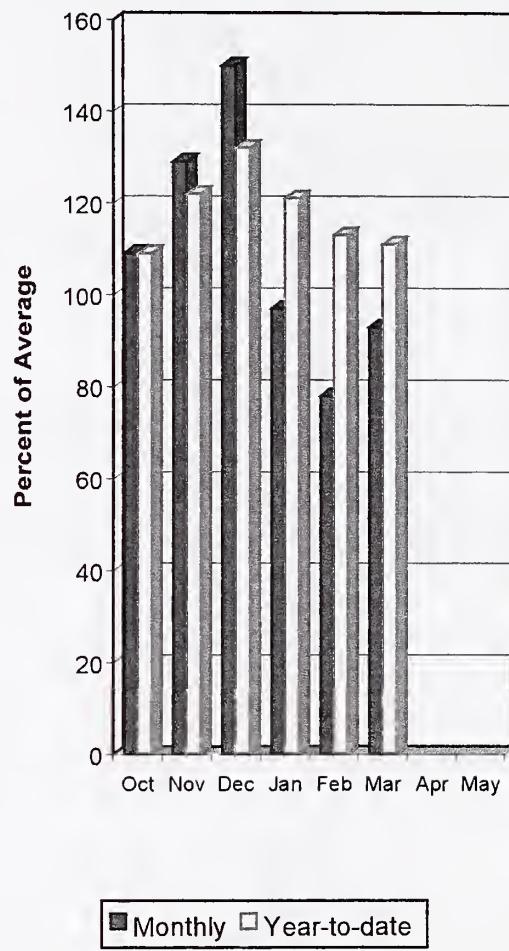
Precipitation - 98%

# Central Puget Sound River Basins

## Mountain Snowpack\*



## Basin Precipitation\*



\*Based on selected stations

Forecast for spring and summer flows are: 101% for Cedar River near Cedar Falls; 99% for Rex River; 106% for South Fork of the 93% of average, bringing water-year-to-date to 111% of average. April 1 average snow cover in Cedar River Basin was 129%, Tolt River Basin was 141%, Snoqualmie River Basin was 122%, and Skykomish River Basin was 122%. Alpine Meadows SNOTEL, at 3500 feet, had 64.6 inches of water content. Average April 1 water content at Alpine Meadows is 43.5 inches. Average temperatures were slightly below normal for the past month.

*For more information contact your local Natural Resources Conservation Service office.*

# Central Puget Sound River Basins

## Streamflow Forecasts - April 1, 2000

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg.	
		<===== Drier =====>		Chance Of Exceeding *		Wetter =====>			
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)		
CEDAR near Cedar Falls	APR-JUL	64	72	78	102	84	92	77	
	APR-SEP	70	79	86	101	92	101	84	
	APR-JUN	57	64	69	102	74	81	68	
REX near Cedar Falls	APR-JUL	20	24	27	100	30	34	27	
	APR-SEP	23	27	30	99	33	37	30	
	APR-JUN	18.4	22	24	99	27	30	25	
CEDAR RIVER at Cedar Falls	APR-JUL	61	73	82	100	91	103	82	
	APR-SEP	64	75	83	100	91	102	83	
	APR-JUN	59	72	80	100	89	101	80	
SOUTH FORK TOLT near Index	APR-JUL	13.8	15.2	16.2	107	17.2	18.6	15.2	
	APR-SEP	15.8	17.7	18.9	106	20	22	17.8	
	APR-JUN	11.2	12.8	13.8	105	14.8	16.4	13.1	

### CENTRAL PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of March

### CENTRAL PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - April 1, 2000

Reservoir	Capacity	Usable Storage			Watershed	Number of Data Sites	This Year as % of Last Yr	Average
		This Year	Last Year	Avg				
					CEDAR RIVER	6	87	129
					TOLT RIVER	3	84	141
					SNOQUALMIE RIVER	6	78	122
					SKYKOMISH RIVER	4	75	118

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

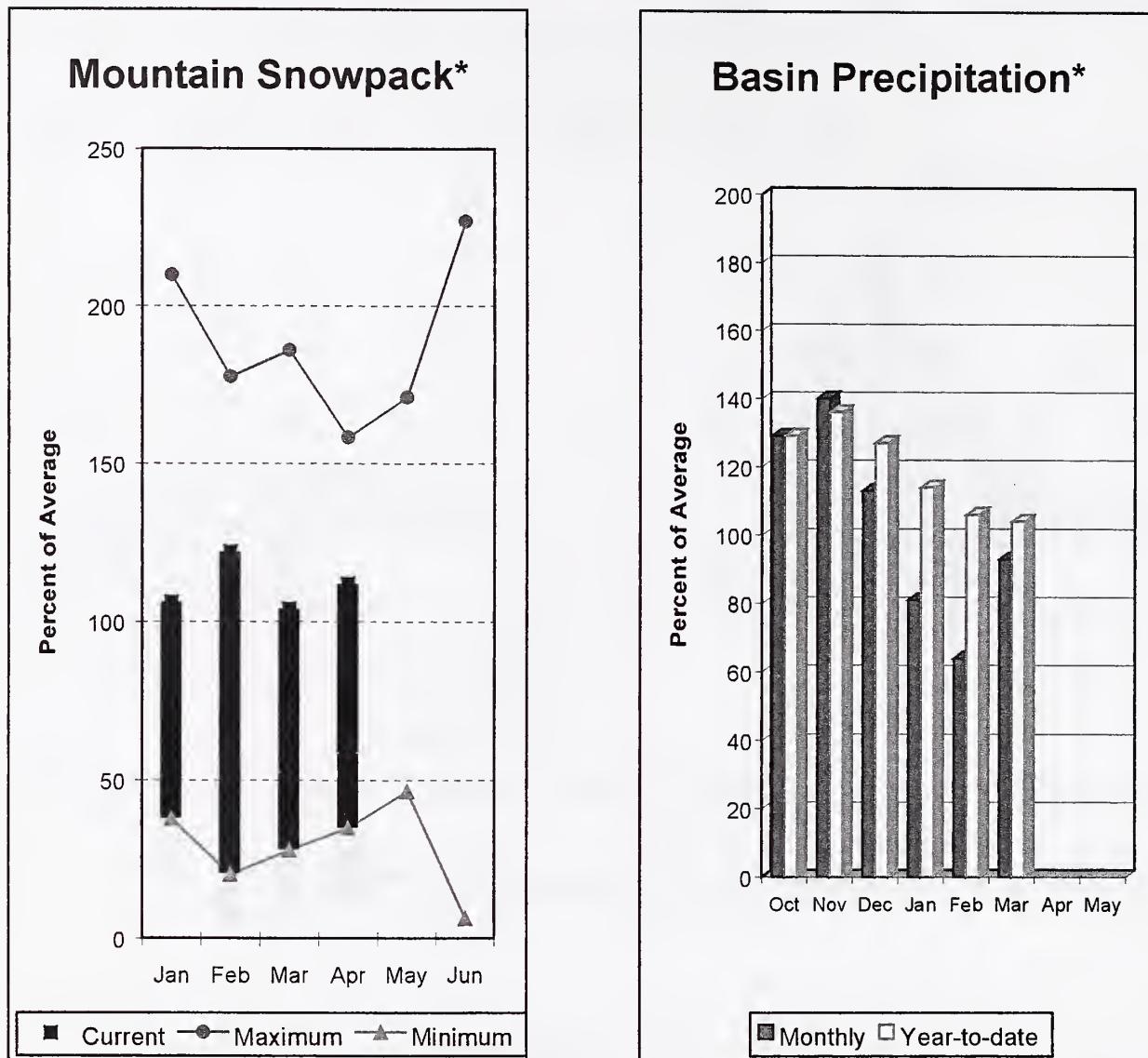
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

**CENTRAL PUGET BASIN  
Percent of Average  
April 1, 2000**  
Snowpack - 128%  
Precipitation - 111%



# North Puget Sound River Basins



\*Based on selected stations

Forecast for Skagit River streamflow is 99% of average for the spring and summer period. March streamflow in Skagit River was 77% of average. Other forecast points included Baker River at 108% and Thunder Creek at 101% of average. Basin-wide precipitation for March was 93% of average, bringing water-year-to-date to 104% of average. April 1 average snow cover in Skagit River Basin was 98%, and Nooksack River Basin was 121%. Rainy Pass SNOTEL, at 4,780 feet, had 38.5 inches of water content. Average April 1 water content was 38 inches. April 1, Skagit River, reservoir storage was 205% of average and 43% of capacity. Average March temperatures were slightly below normal for the basin.

*For more information contact your local Natural Resources Conservation Service office.*

# North Puget Sound River Basins

## Streamflow Forecasts - April 1, 2000

Forecast Point	Forecast Period	Future Conditions						
		<===== Drier =====		Chance Of Exceeding *		Wetter =====>		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
THUNDER CREEK near Newhalem	APR-JUL	207	223	234	102	245	261	230
	APR-SEP	301	318	330	101	342	359	328
	APR-JUN	118	138	151	101	164	184	149
SKAGIT at Newhalem (2)	APR-JUL	1679	1784	1855	99	1926	2031	1879
	APR-SEP	1952	2077	2162	99	2247	2372	2191
	APR-JUN	1221	1325	1396	96	1467	1571	1455
BAKER RIVER near Concrete	APR-JUL	792	851	892	107	933	992	836
	APR-SEP	1027	1100	1150	108	1200	1273	1064
	APR-JUN	554	614	655	107	696	756	611

## NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of March

## NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - April 1, 2000

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROSS	1404.1	610.0	454.0	298.0	SKAGIT RIVER	12	55	98
DIABLO RESERVOIR		NO REPORT			BAKER RIVER	3	74	116
GORGE RESERVOIR		NO REPORT			NOOKSACK RIVER	2	66	121

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

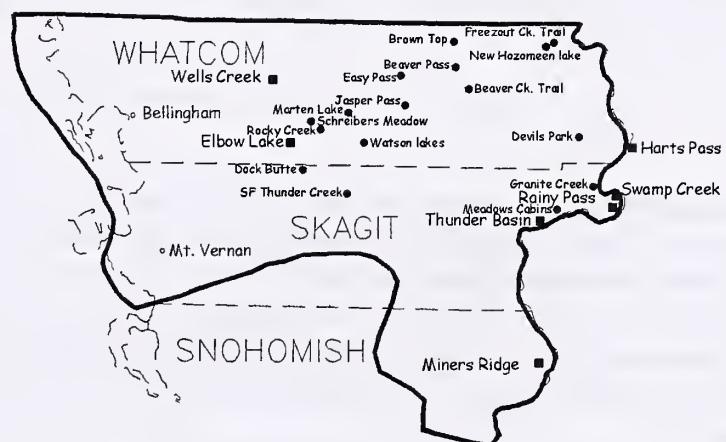
The average is computed for the 1961-1990 base period.

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(2) - The value is natural flow - actual flow may be affected by upstream water management.

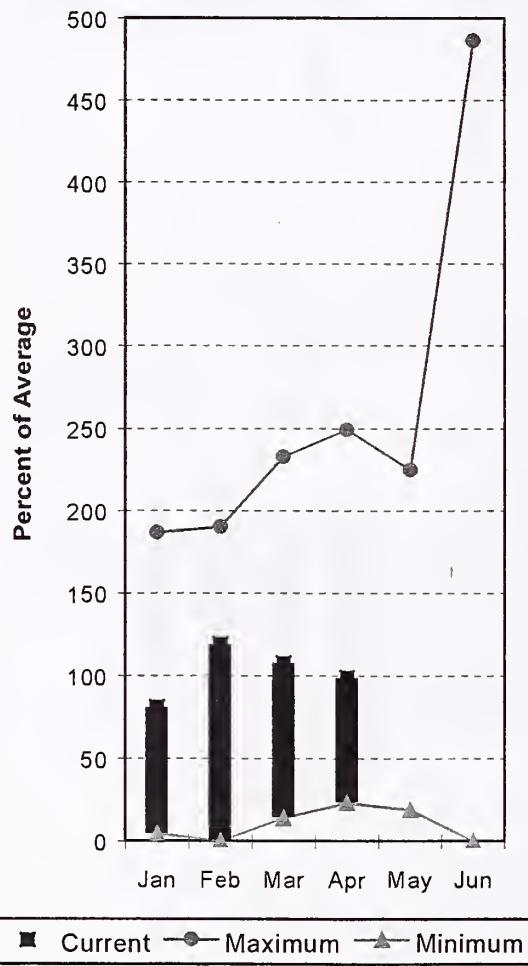
## NORTH PUGET BASIN Percent of Average April 1, 2000

Snowpack - 112%  
Precipitation - 104%  
Reservoir - 205%

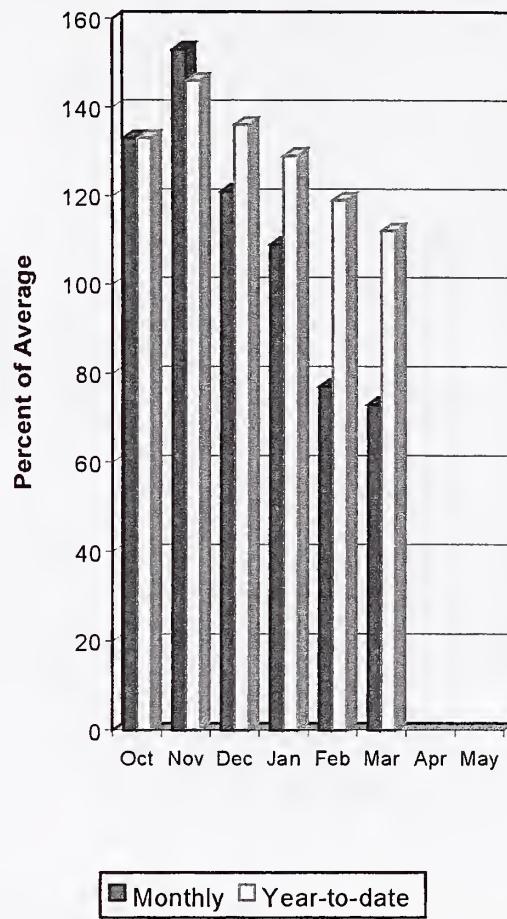


# Olympic Peninsula River Basins

## Mountain Snowpack\*



## Basin Precipitation\*



\*Based on selected stations

April average streamflow forecasts for both the Dungeness River and Elwha River is 101%. Big Quilcene and Wynoochee rivers can expect near average runoff this summer also. March precipitation was 73% of average. Precipitation has accumulated at 112% of average for the water-year. March precipitation at Quillayute was 9.75 inches. The thirty-year average for March is 11.05 inches. April 1 snow cover in the Olympic Basin was at 99% of average. The Mount Crag SNOTEL near Quilcene had 35.6 inches of snow-water-equivalent on April 1. Average for this site is 31.5 inches. Temperatures were near average for the month.

*For more information contact your local Natural Resources Conservation Service office.*

# Olympic Peninsula River Basins

## Streamflow Forecasts - April 1, 2000

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)	
		<===== Drier =====		Chance Of Exceeding *		Wetter =====>			
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)		
DUNGENESS near Sequim	APR-SEP	137	148	155	101	162	173	153	
	APR-JUL	111	120	126	101	132	141	125	
	APR-JUN	80	89	95	101	101	110	94	
ELWHA near Port Angeles	APR-SEP	454	490	515	101	540	576	510	
	APR-JUL	377	409	430	101	451	483	424	

## OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of March

## OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - April 1, 2000

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					OLYMPIC PENINSULA	4	40	99
					ELWHA RIVER	1	32	81
					MORSE CREEK	1	41	100
					DUNGENESS RIVER	1	38	97
					QUILCENE RIVER	1	46	113
					WYNOCHEE RIVER	0	0	0

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

**OLYMPIC PENINSULA BASIN  
Percent of Average  
April 1, 2000**  
 Snowpack - 99%  
 Precipitation - 112%





Issued by

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## The Following Organizations Cooperate with the Natural Resources Conservation Service in Snow Survey Work\*:

Canada	Ministry of the Environment Investigations Branch, Victoria, British Columbia
State	Washington State Department of Ecology Washington State Department of Natural Resources
Federal	Department of the Army Corps of Engineers U.S. Department of Agriculture Forest Service U.S. Department of Commerce NOAA, National Weather Service U.S. Department of Interior Bonneville Power Administration Bureau of Reclamation Geological Survey National Park Service Bureau of Indian Affairs
Local	City of Tacoma City of Seattle Chelan County P.U.D. Pacific Power and Light Company Puget Sound Power and Light Company Washington Water Power Company Snohomish County P.U.D. Colville Confederated Tribes Spokane County Yakama Indian Nation Whatcom County Pierce County
Private	Okanogan Irrigation District Wenatchee Heights Irrigation District Newman Lake Homeowners Association Whitestone Reclamation District

\*Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.



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